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ABSTRACT

This document consists of the 12 monthly issues of this research newsletter for the year 2000. The purpose of the newsletter is to inform those who formulate, fund, and administer policy related to higher education. The lead articles for this volume are: (1) "Institutional Graduation Rates for Pell Grant Recipients by Institutional Academic Selectivity"; (2) "President Clinton's Proposed Tax Credit Extensions: Misdirected Resources, Bad Tax Policy, Unintended Consequences"; (3) "Information Technology and Higher Educational Opportunity"; (4) "Higher Educational Opportunity by Family Income 1998"; (5) "Student Employment in High School and College 1987 to 1998"; (6) "College Continuation Rates for 1999 High School Graduates"; (7) "College Participation for Students from Low Income Families by State, 1992 to 1998"; (8) "Chance for College by Age 19 by State in 1998"; (9) "Higher Education Proposals of Albert Gore and George Bush"; (10) "Educational Attainment in the Human Capital Economy"; (11) "Private Economic Benefit/Cost Ratios of a College Investment for Men and Women"; and (12) "Undergraduate Degree Completion by Age 25 to 29 for Those Who Start College 1992 to 2000." (SLD)

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Postsecondary Education

OPPORTUNITY

The Mortenson Research Seminar on Public Policy Analysis of Opportunity for Postsecondary Education

Number 91 **www.postsecondary.org** **January 2000**

The shape of the river . . . *. . . for students from low income families*

Institutional Graduation Rates for Pell Grant Recipients by Institutional Academic Selectivity

Institutional graduation rates (IGR) are determined primarily by the pre-college academic and other backgrounds of freshmen when they enter their college or university. After that, some institutions do a relatively better job of graduating the freshmen that they enroll than do other institutions. We attribute most of these remaining differences in IGRs to differences in the academic and social environments between institutions practicing the gospels of retention according to Tinto and Astin.

Here we examine institutional graduation rates from 4-year colleges and universities primarily for students from low income families (Pell Grant recipients) and secondarily for students who are not from low income families (students who do not receive Pell Grants). In particular, we are interested in the question:

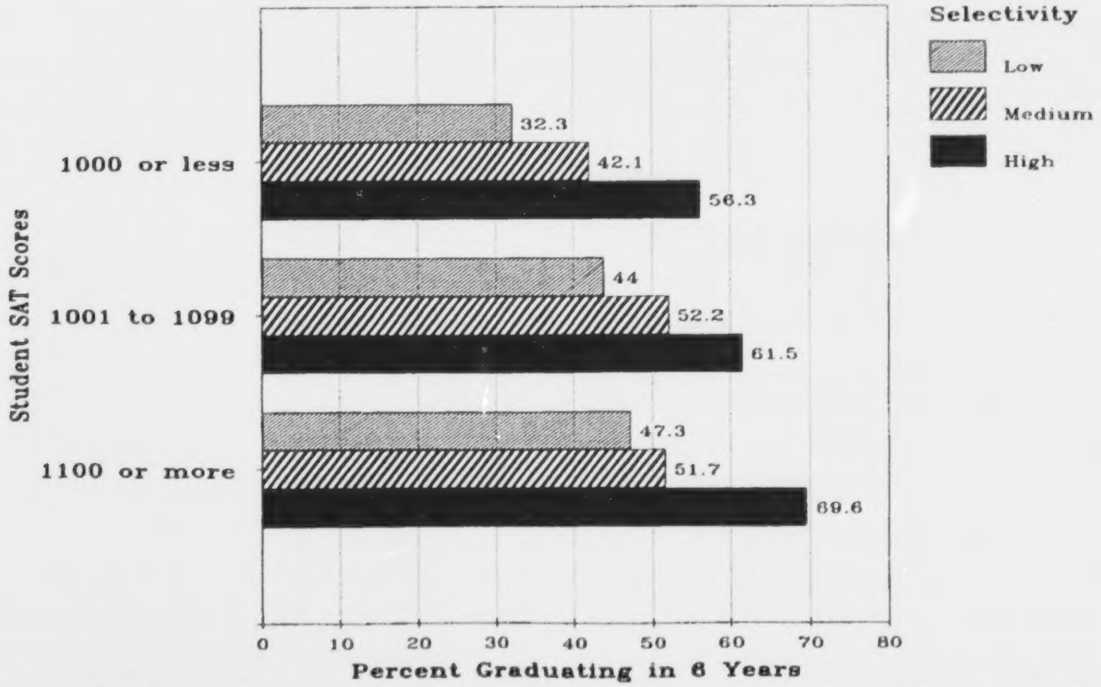
> *Where should a student from a low income family attend college to maximize his/her chances of graduating from that institution?*

The answer to this question is found in previous research on student graduation from college:

> *The student from a low income family background, or a student from any family income background for that matter, should attend the most selective institution that he/she can get into.*

Our results here are not new. Academically selective institutions are more successful in graduating the

6-Year Institutional Graduation Rates for
Pell Grant Recipients by Student SAT Score and
Institutional Selectivity, 1985 Freshman Cohort



Source: UCLA Freshman Survey

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freshmen they admit than are less selective institutions. This finding holds up even when the student's SAT is controlled. The finding holds for all types of public and private colleges and universities.

The main utility of this particular study and its findings is that we are especially concerned about students from low income families--those who receive Pell Grants to help finance their higher educations. The message here is twofold: students should seek, not avoid, academic challenge to maximize their chances of success in college. Also, colleges should challenge the students they enroll. This applies to students from across the range of family incomes, SAT scores and it applies to all types of public and private 4-year colleges and universities.

The Data

The data used in this study were collected by Astin and his associates at UCLA's Higher Education Research Institute. The original baseline data were collected on the 1985 cohort of first-time, full-time college freshmen. These data were published as a part of the annual HERI series of descriptive reports on American college freshmen.

Astin, A.W., Green, K.C., Korn, W.S., and Schalit, M. (December 1985). *The American Freshman: National Norms for Fall 1985.* Los Angeles: Higher Education Research Institute, University of California, Los Angeles.

The fall 1985 cohort of first-time, full-time freshmen entering 365 bachelor degree granting institutions was followed up at those same institutions after 4, 6 and 9 years to determine their graduation status. The data from this amended research file at HERI were analyzed for this study.

Astin and his colleagues at UCLA have reported their own analyses from this file.

Astin, A.W., Tsui, L., and Avalos, J. (September 1996). *Degree Attainment Rates at American Colleges and Universities: Effects of Race, Gender, and Institutional Type.* Los Angeles: Higher Education Research Institute, University of California, Los Angeles.

In addition, OPPORTUNITY has reported several of our own analyses from this file in issues #54 and #57.

Our Analysis

This study began at the Center for the Study of Opportunity in Higher Education, Washington DC, in the fall of 1997. The Center is the research arm of the Council for Opportunity in Education--the national professional organization of federal TRIO programs. These programs are focused on students from low income families (less than 150 percent of the poverty level) where neither parent graduated from college. There are five federal TRIO programs that provide supportive services to students: Upward Bound, Talent Search, Educational Opportunity Centers, Student Support Services and McNair Postbaccalaureate Scholars.

This particular study was conceived by Maureen Hoyler, Executive Vice President of the Council for Opportunity in Education. In discussions with Center staff, the question was posed:

> *Where should students from low income family backgrounds attend college to maximize their chances for success through graduation?*

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Mission Statement

This research letter is founded on two fundamental beliefs. First, sound public social policy requires accurate, current, independent, and focused information on the human condition. Second, education is essential to the development of human potential and resources for both private and public benefit. Therefore, the purpose of this research letter is to inform those who formulate, fund, and administer public policy and programs about the condition of and influences that affect postsecondary education opportunity for all Americans.

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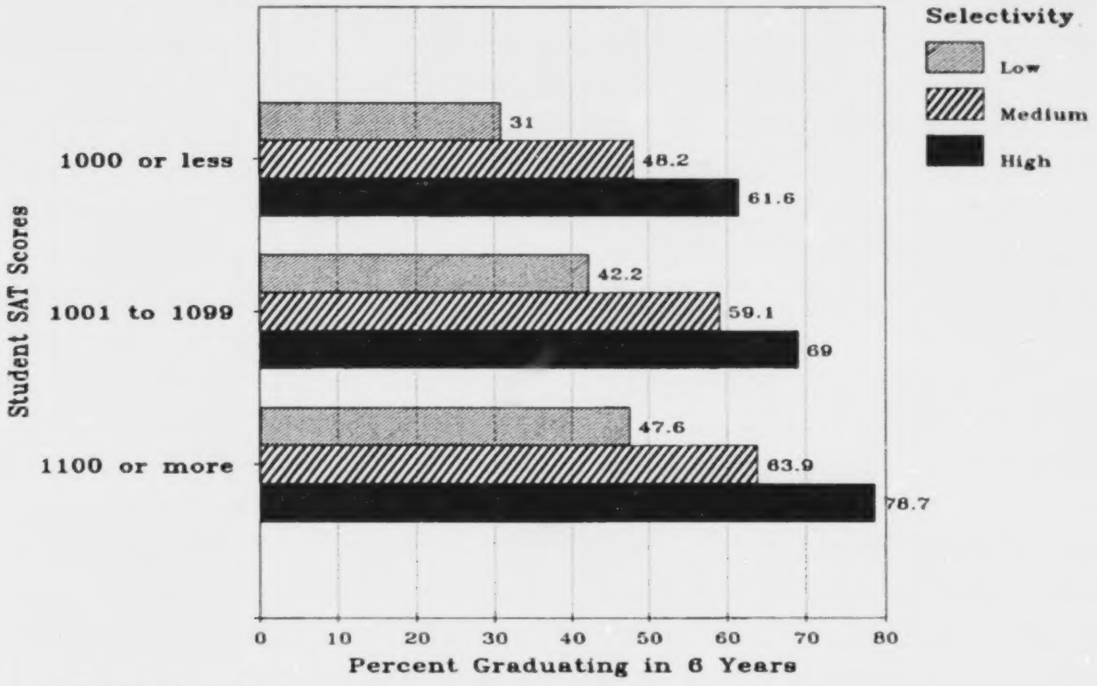
6-Year Institutional Graduation Rates for non-Pell Grant Recipients by Student SAT Score and Institutional Selectivity, 1985 Freshman Cohort



Source: UCLA Freshman Survey

Our focus here is on students from low income families. We identify these students by their self-reported receipt of a Pell Grant in the initial 1985 Freshman Survey. Thus, the students in the research file are first divided into two groups: those who received Pell Grants and therefore come from low income family backgrounds, and those who did not receive Pell Grants and therefore come from higher family income backgrounds.

Furthermore, because of the enormous effect of pre-college academic records on student persistence and degree attainment, we controlled for this. All students were further divided into three SAT score ranges: 1000 or less, 1001 to 1099, and 1100 or more. (Note that these are pre-recentered SAT scores, and students with ACT scores had their ACT Composite converted to SAT through concordance tables relevant to college admissions tests used for the 1985 freshman class.)

Finally, we were interested in the types of institutions where students from low income families were most likely to be successful. Institutional type and control provides one measure of which institutions best serve students from low income families.

However, we were more interested in the academic challenge of college. Thus, institutions were grouped by academic selectivity. In the HERI classification system, ACT Composite scores were converted to SAT V+M scores based on concordance tables at the time. (Note: Since 1985 the ACT has been rescaled and the SAT has been recentered. Thus current scores are not comparable to scores used in 1985.)

The UCLA Higher Education Research Institute used a system of classifying institutions according to academic selectivity that varied by type and control of institution. For example, highly selective private universities had average SAT scores above 1175, but public universities used 1100 and most types of 4-year colleges were highly selective if average SATs' were above 1025. Thus, the institutional selectivity used in the UCLA Freshman Norms and used in this study depends on institutional type and control. It is relative.

IGRs by Family Income, Student SAT and Institutional Selectivity

All institutions. Six-year institutional graduation rates for Pell Grant recipients beginning their studies in 1985 were 37.0 percent for those with SATs of 1000 or less, 50.5 percent for those with SATs of 1001 to 1099, and 58.2 percent for those with SATs of 1100 or more. For those who did not receive Pell Grants, the six-year IGRs were 40.6 percent for those with SATs of 1000 or less, 56.6 percent for those with SATs of 1001 to 1099, and 68.6 percent for those with SATs of 1100 or more. These results are to be expected. IGRs are directly correlated with student SAT scores. But they are also related to family income when SAT is controlled.

However, we are also interested here in IGRs for students in institutions at different levels of admissions selectivity. For Pell Grant recipients (students from low income families), IGRs are shown in the chart on page 1 of this issue of OPPORTUNITY.

- For Pell recipients with SATs of 1000 or less, IGRs were 32.3 percent at institutions practicing low admissions selectivity, 42.1 percent at institutions practicing medium selectivity, and 56.3 percent at highly selective institutions.
- For Pell recipients with SATs between 1001 and 1099, IGRs were 44.0 percent at institutions with low admissions selectivity, 52.2 percent at medium selectivity institutions, and 61.5 percent at highly selective institutions.
- For Pell recipients with SATs of 1100 or more, IGRs were 47.3 percent at institutions with low selectivity, 51.7 percent at medium selectivity institutions, and 69.6 percent at highly selective institutions.

The above represent the central findings from this study: for Pell Grant recipients (students from low income families), at any level of scholastic aptitude (as measured by the SAT V+M), prospects for graduation *increased significantly* with the academic selectivity of the institution where the student began his/her studies. This holds for Pell Grant recipients with relatively low SAT scores, or mid-range SAT scores, or relatively high SAT scores.

Thus we conclude that Pell Grant recipients should seek to pursue their higher educations in the most selective college or university that they can get in to if they truly hope to graduate with a bachelor's degree. Such students should not avoid the academic challenge of a competitive college, but instead should seek it out. Likewise, colleges that admit Pell Grant recipients (students from low income families) should not water down academic challenge. They should offer it, and provide supportive services to students who need assistance to take full advantage of the challenging opportunities presented.

What about students who do not receive Pell Grants? (These are students who come from families with incomes too high to qualify for Pell Grants.) The answer is that the above findings hold for these students too.

As shown in the chart on page 3, among students who did not receive Pell Grants at each level of student SAT score, IGRs increased sharply with institutional selectivity.

- For students who did not receive Pell Grants whose SAT scores were 1000 or less, 6-year IGRs were 31.0 percent at low selectivity institutions, 48.2 percent at medium selectivity institutions, and 61.6 percent at high selectivity institutions.
- For students who did not receive Pell Grants whose SAT scores ranged between 1001 and 1099, IGRs were 42.2 percent for those entering low selectivity institutions, 59.1 percent for those entering medium selectivity institutions, and 69.0 percent for those entering highly selective institutions.
- For students not receiving Pell Grants with SAT scores of 1100 or more, IGRs were 47.6 percent at the least selective institutions, 63.9 percent at medium selectivity, and 78.7 percent at highly selective institutions.

Thus, here too we conclude that students who wish to maximize their chances of graduating from college should try to pursue their studies in the most selective institutions that they can get in to.

(The balance of this report is focused on IGRs for Pell Grant recipients. Parallel data on students from higher family income backgrounds who did not receive Pell Grants was collected in our study but is not reported here due to space limitations. All data from this study are consolidated in a single Excel spreadsheet available for downloading on our website at:

http://www.postsecondary.org

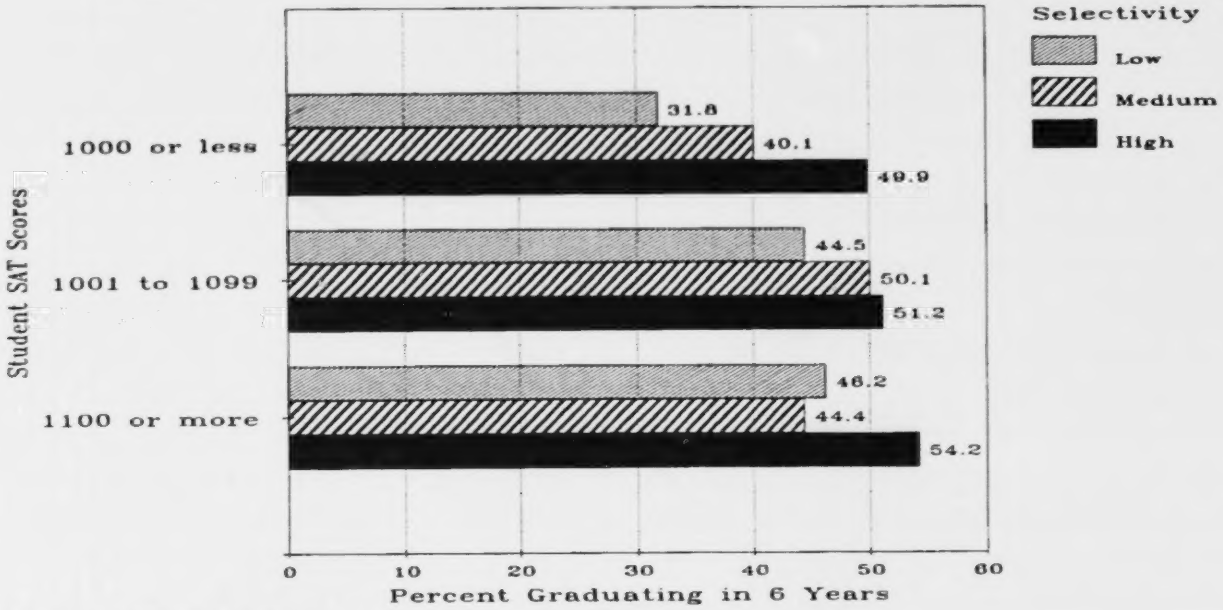
under the Spreadsheets button. This is a .pdf file that requires Adobe Acrobat software to download, view and print.)

Control. The charts on the next page show 6-year IGRs for Pell Grant recipients at public (top) and private (bottom) institutions. Again, IGRs are shown for institutions grouped by admissions selectivity, then students grouped by SAT scores.

The previous findings hold here also. Generally, for Pell Grant recipients at any given SAT level, pursuing collegiate study in a more selective institution increases chances of graduation compared to enrollment at a less selective college or university. Also, controlling for student SAT and institutional selectivity, Pell Grant recipients attending private institutions graduate at higher rates than do students attending public institutions.

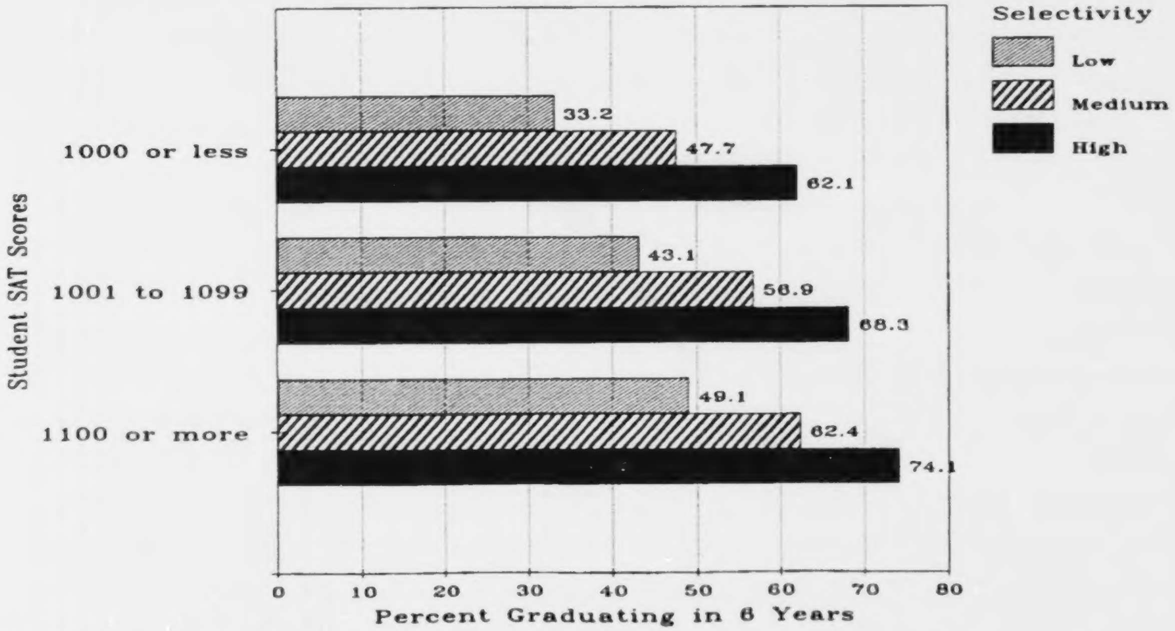
Pell grant recipients should not fear academic challenge--they should seek it out.

Six-Year Institutional Graduation Rates for Pell Grant Recipients by Student SAT Scores and Institutional Selectivity at Public Institutions



Source: UCLA Freshman Survey

Six-Year Institutional Graduation Rates for Pell Grant Recipients by Student SAT Scores and Institutional Selectivity at Private Institutions



Source: UCLA Freshman Survey

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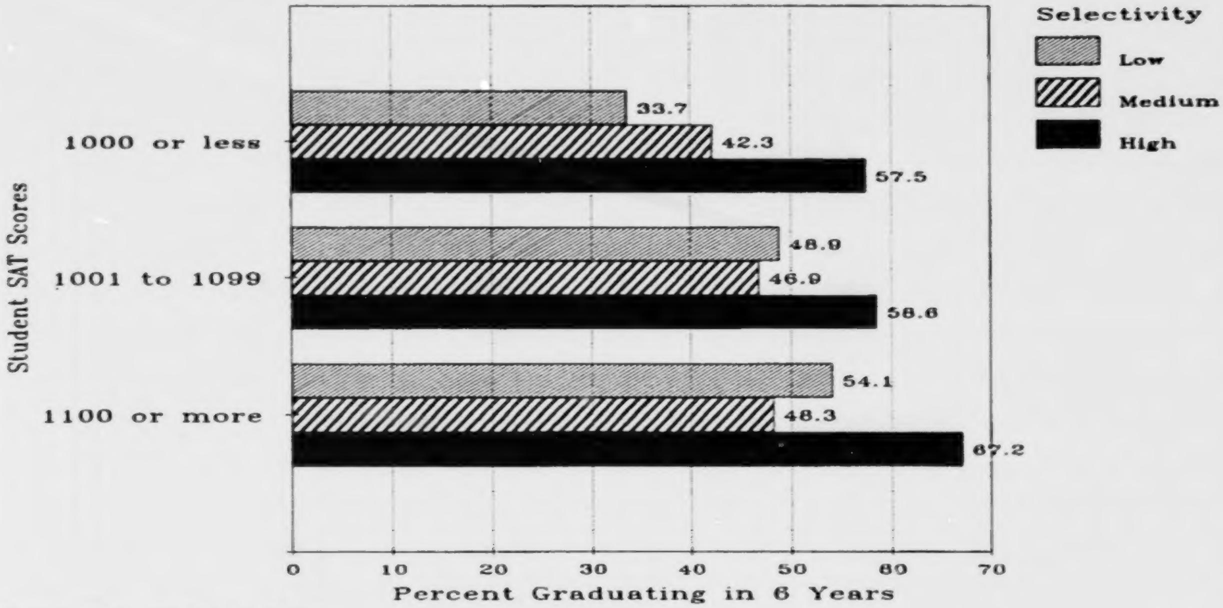
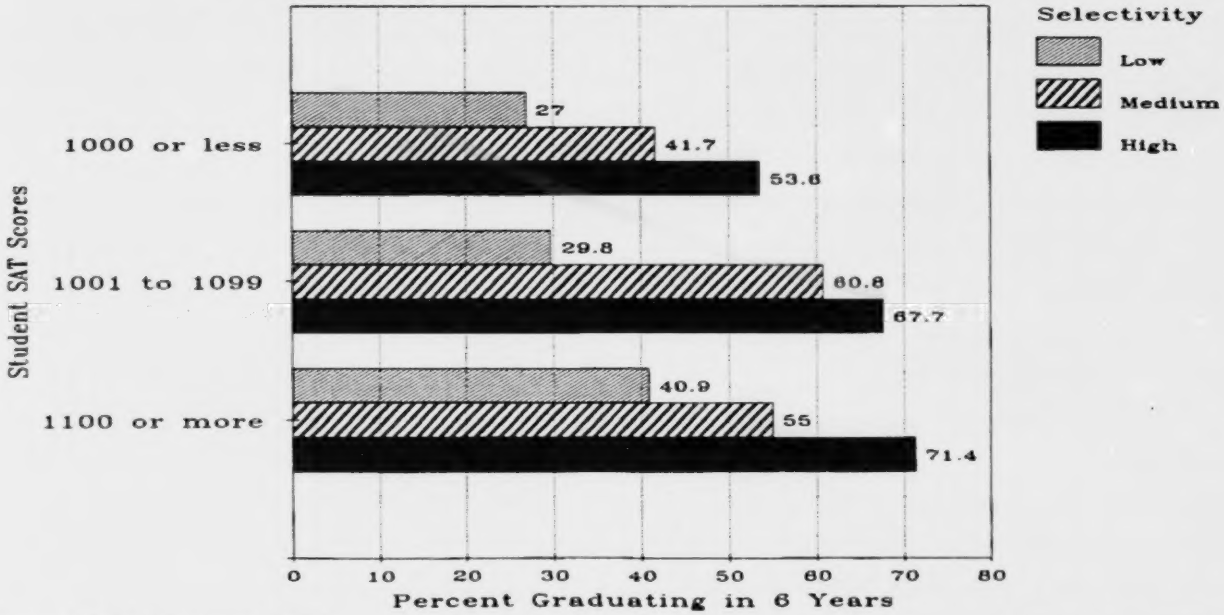
Six-Year Institutional Graduation Rates
for Pell Grant Recipients by Student SAT Scores
and Institutional Selectivity at 4-Year Colleges



Source: UCLA Freshman Survey

Six-Year Institutional Graduation Rates
for Pell Grant Recipients by Student SAT Scores
and Institutional Selectivity at Universities



Source: UCLA Freshman Survey

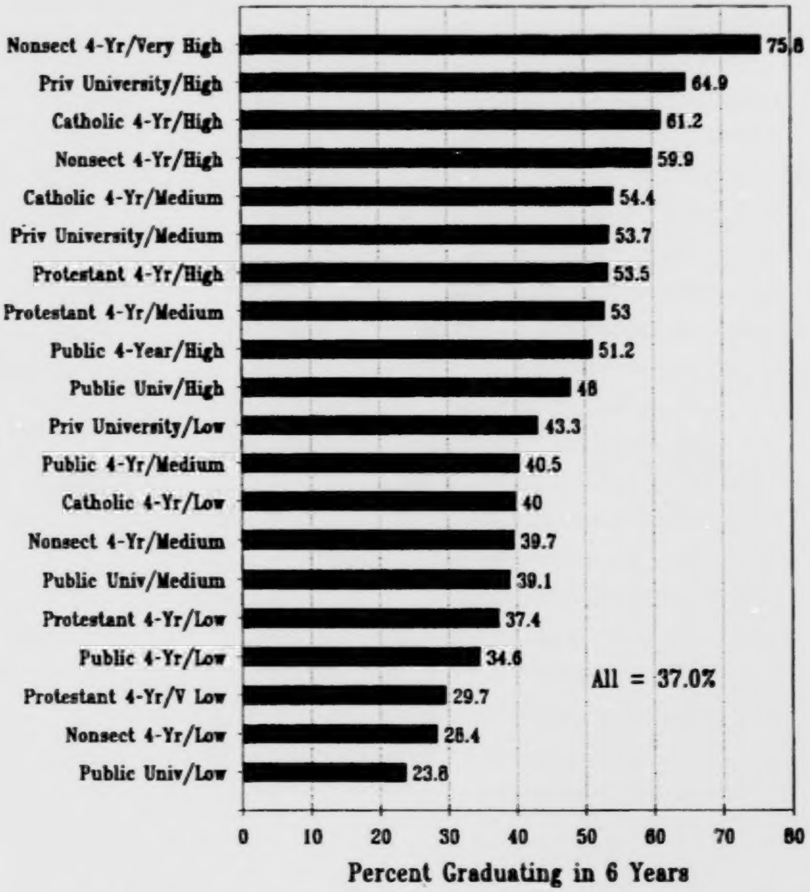
Type. Six-year institutional graduation rates for Pell Grant recipients by institutional type are shown in the charts on page 6. With some variation, the previous patterns still hold. At each SAT level, IGRs tend to increase with institutional selectivity. This pattern is clearest among the universities (public and private are here combined). The pattern still holds in 4-year colleges, but is somewhat more muddled for students with SATs of more than 1000. In this case IGRs decline slightly from least selective to middle selective colleges, then resume their increase at the highly selective 4-year colleges.

Space limitations prevent reporting here the data and charts for more specific types *and* controlled institutions. However, these charts are available for downloading along with the more complete data and charts from our website. Additional charts not included in this report, but available for downloading from the website, are:

- Public universities
- Private universities
- Public 4-year colleges
- Catholic 4-year colleges
- Protestant 4-year colleges
- Nonsectarian 4-year colleges

With few exceptions, these charts show the previous patterns: at each level of student SAT score, IGRS tend to increase with institutional academic selectivity.

Six-Year Institutional Graduation Rates
for Pell Grant Recipients with SAT Scores 1000 or Less
at Institutions by Control, Type and Academic Selectivity



Source: UCLA Freshman Survey

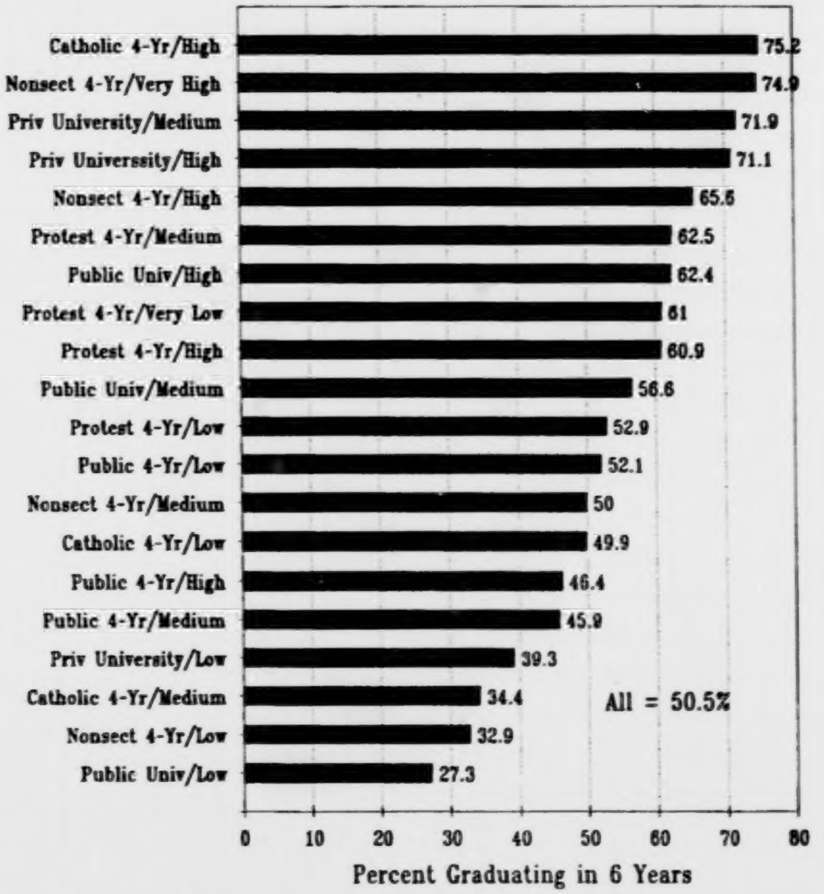
IGRs Ranked by Student SAT Scores

Because our study focuses on institutional graduation rates for students from low income family backgrounds, we rearranged our data to address specifically which institutions have the highest IGRs for Pell Grant recipients. First we control for student SAT scores because SAT along accounts for at least half of a student's chances of earning a bachelor's degree six years after first enrolling. Then, when student's SAT is controlled we rank institutions grouped by type, control and admissions selectivity according to their Pell Grant recipient IGRs.

For Pell Grant recipients with SATs of 1000 or less, the overall IGR was 37.0 percent. But adding controls for institutional control, type and admissions selectivity, institutional graduation rates ranged from 23.8 percent at low selectivity public universities to 75.8 percent at very highly selective nonsectarian 4-year colleges. That is to say, if a student with a SAT of 1000 or less could get into a highly selective nonsectarian 4-year college, his/her chances of graduating in six years would be more than three times greater than if the student entered a low selectivity public university. These data are shown in the chart on this page.

For Pell Grant recipients with SATs of 1001 to 1099, the overall IGR was 50.5 percent. But again controlling for institutional control, type and selectivity, institutional graduation rates ranged from 27.3 percent at

Six-Year Institutional Graduation Rates for Pell Grant Recipients with SAT Scores from 1001 to 1099 at Institutions by Control, Type and Academic Selectivity



Source: UCLA Freshman Survey

public universities with low admissions selectivity, to 75.2 percent at **Catholic 4-year colleges practicing highly selective admissions**. Again, a Pell Grant recipient with a SAT of 1001 to 1099 would have a three-times better chance of earning a bachelor's degree in six years if he/she chose a highly selective Catholic 4-year college over a public university practicing low admissions selectivity. These data are shown in the chart on the following page.

For Pell Grant recipients with SATs of 1100 or more, the overall IGR was 58.2 percent. Introducing controls for institutional type, control and selectivity, IGRs ranged from 38.1 percent at **nonsectarian 4-year colleges** with low admissions selectivity to 77.6 percent at **nonsectarian 4-year colleges** practicing very highly selective admissions. Here the differential between the lowest and highest has shrunk to 2 to 1.

The consistent theme in these data is that Pell Grant recipients with given SAT test scores can influence their chances of earning a bachelor's degree through informed choice of institutions with different missions, controls and admissions selectivity practices. The message to the Pell Grant recipient is clear: *go for the very best school that you can get in to.*

Differences in IGRs between Pell Recipients and Students Who Do Not Receive Pell Grants

Finally, we examine a related question.

> *In what kinds of institutions are Pell Grant recipients most likely to have similar graduation rates to those of students who do not receive Pell Grants?*

This is an equity question. It asks which institutions provide supportive services that equalize educational opportunity for the lowest income students among those admitted. These supportive equalization efforts would include:

- *Meeting the full financial needs of admitted students with appropriate forms of financial aid.* Many institutions either package "gaps" in financial aid awarded to needy students, or award excessive amounts of loans, or both. Also some institutions award more aid than needed to some students, and do not fully and fairly meet the needs of students from low income family backgrounds. Such practices foster inequality in the financing of higher educational opportunity, and work against students from low income family backgrounds.

- *Creating supportive academic and social environments for students.* Some students survive the transition from high school to college better than others. Institutions can help in this transition, or do little to assist students during this period.

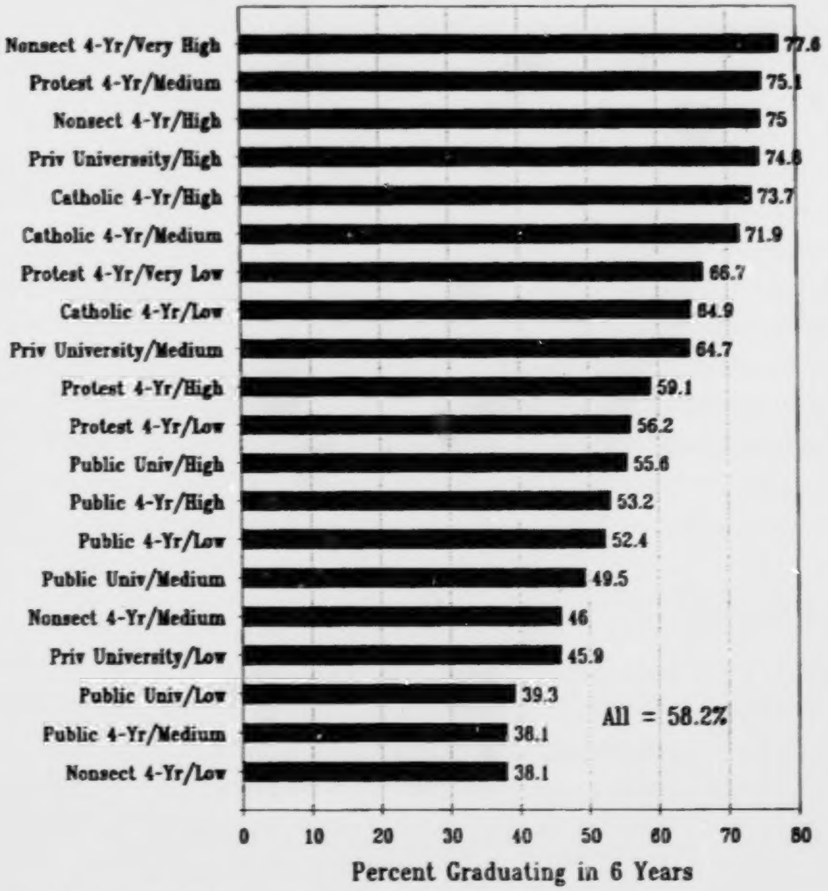
Our analysis of the HERI data finds that Pell Grant recipients are usually--*but not always*--less likely than students who do not receive Pell Grants to graduate from college. Controlling for students' SAT scores, there is a wide range in this difference across institutions grouped by type, control and selectivity.

For example, for students with SAT scores of 1000 or less, Pell Grant recipients were somewhat *more* likely to graduate than were students who did not receive Pell Grants at public 4-year and protestant 4-year colleges with low admissions selectivity.

However, Pell Grant recipients were substantially less likely to graduate than students who did not receive Pell Grants at private universities practicing highly selective admissions, public universities practicing medium selectivity and private universities practicing medium selectivity in their admissions. (See chart on page 10.)

(The data for this analysis is contained in the spreadsheet available on our website.)

Six-Year Institutional Graduation Rates for Pell Grant Recipients with SAT Scores over 1100 at Institutions by Control, Type and Academic Selectivity



Source: UCLA Freshman Survey

For students with SAT scores of 1001 to 1099, an even wider range between IGRs for Pell recipients and those who did not receive Pell Grants exists across institutions. Students with Pell Grants were more likely to graduate than those who did not receive these grants in protestant 4-year colleges with very low selectivity, public 4-year colleges with low selectivity, nonsectarian 4-year colleges with medium selectivity, and others.

At the other end of the range, Pell recipients were considerably less likely to graduate than were those who did not receive Pell Grants at Catholic 4-year colleges with medium selectivity, private universities with low selectivity, public 4-year colleges with high selectivity, and many other types of institutions. (See chart on page 11.)

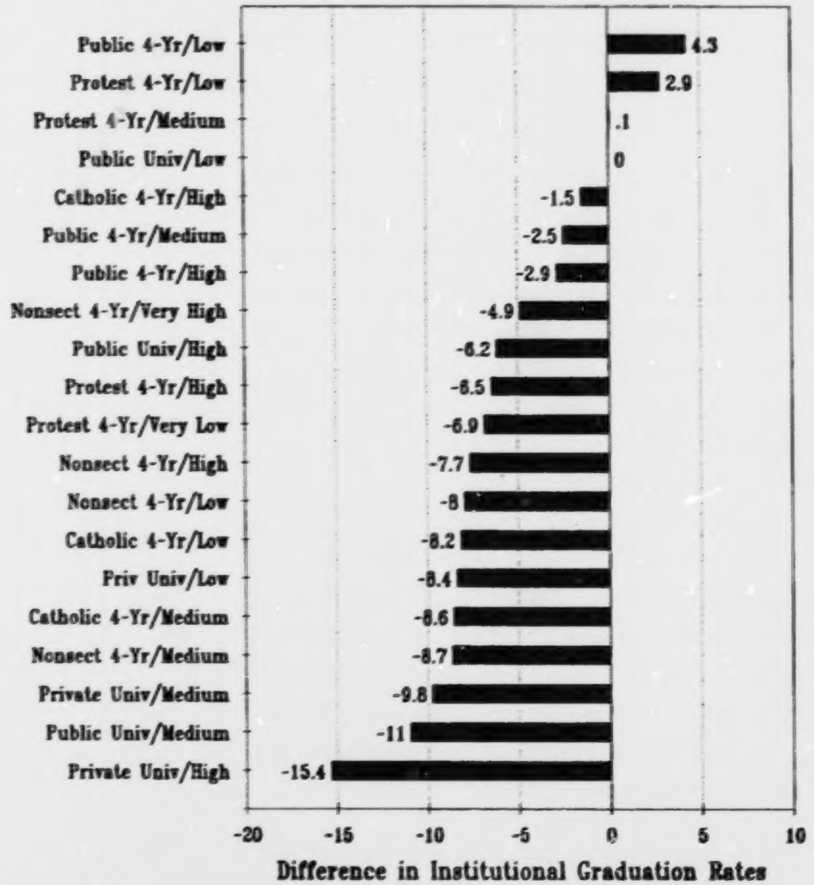
For students with SAT scores of 1100 or more, Pell Grant recipients had higher institutional graduation rates than did students who did not receive Pell Grants at Catholic 4-year colleges practicing medium admissions selectivity, protestant 4-year colleges practicing medium and low admissions selectivity, and public 4-year colleges with low admissions selectivity.

For those with SAT scores of 1100 or more, Pell Grant recipients had considerably lower institutional graduation rates than did non-recipients at private universities practicing low admissions selectivity, public universities practicing medium selectivity, public 4-year colleges that practiced medium selectivity, and many other types of institutions. These data are shown in the chart on page 12.

Educational Opportunity for Students from Low Income Families

There are many barriers to higher

Difference in Six-Year Institutional Graduation Rates between Pell Grant and Non-Pell Grant Recipients with SAT Scores of 1000 or Less by Institutional Control, Type and Academic Selectivity



educational opportunity for students. Most of these barriers have a greater negative impact on students from low income families than they do on students from higher income families. These barriers include:

- *Financial.* Students from families with incomes of less than $40,000 per year face average unmet financial needs of $3000 to $4000 to attend college. Often the forms of aid to fill this gap--expensive loans and/or off-campus employment--impose additional barriers to higher education.
- *Academic.* Students from low income families are considerably less likely to complete a college preparatory curriculum in high school than are students from high income families. This leads to substantially different performance of college admissions test across family income levels, to differences in where students attend, and to their chances of successfully completing college degrees.
- *Geographic.* Distance imposes both economic and cultural barriers to higher education. Students may be place-bound and hence find distant campuses inaccessible. But often distance has a cultural dimension, i.e. the other side of the tracks.
- *Institutional.* Colleges often employ admissions criteria to screen among applicants and these criteria usually favor students from higher income families, and disfavor students from low income families. Moreover, institutions are unevenly committed to providing success-geared environments for the students that they enroll.
- *Social.* Most students from low income families grow up in communities that provide weak support for collegiate enrollment. Peer pressures in such communities may be anti-intellectual, and actively discourage scholastic achievement.
- *Cultural.* Community behaviors and values are usually reflected in language, aspirations and other features that interfere with progress toward and success in higher education.
- *Genetic.* What's wrong with the guys? There is a growing problem of male participation in higher education, and the gender difference between males and females is greatest among those from families with incomes of less than $20,000 per year.
- *Technology.* The information technology revolution is creating a digital divide within society. (Some call this digital apartheid.) As education and educational opportunity are increasingly affected by these changes, those from lower family income backgrounds are increasingly left behind, unable to participate and compete.
- *Disabilities.* Learning and health-related disabilities sharply curtail postsecondary educational opportunities for those who are afflicted.

Federal and state public policy makers

have chosen to address some of these barriers and not others. Most of the efforts have been half-hearted, and what good efforts were made in the 1960s and 1970s have been substantially weakened in the 1980s and 1990s, largely through neglect.

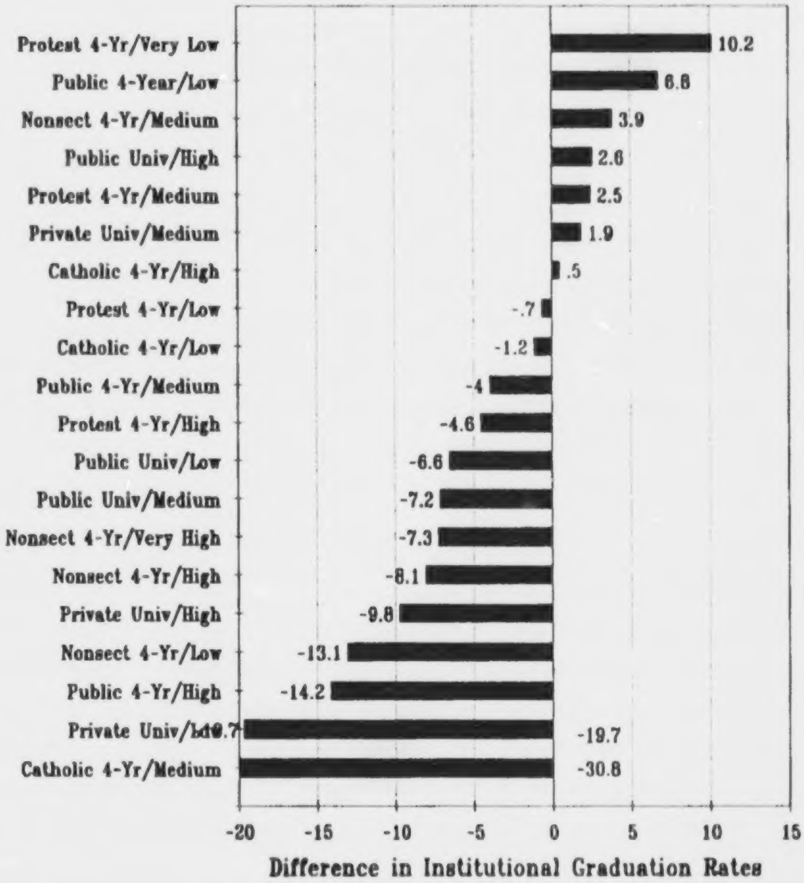
At the federal level, beginning with the Middle Income Student Assistance Act in 1978, the focus of financial aid programs has shifted away from low income and toward those from middle and upper income families.

- Since FY1976 federal student aid has shifted away from grants and toward loans, which best serve students from middle and upper income families.
- The federal Pell Grant, which is the foundation for all financial aid packages, now buys about half as much higher education as it did at the end of the 1970s.
- Federal TRIO programs which provide outreach services to students from low income families reach fewer than one in twenty such students.

At the state level, institutionally-based investments are inefficient ways of getting limited states resources to those who need state assistance the most. But even these investments have been curtailed.

- Reducedinstitutionalappropriations since FY1979 have resulted in higher tuition charges to students in public institutions. Very few states have even tried to cover these tuition increases for financially needy students.
- More recently, based on Georgia's HOPE Scholarship Program model, states have begun shifting the focus of their state financial aid programs away from need-based grants to merit-based scholarships. This shifts state financial aid resources away from students from low income families toward students from higher and highest income families.

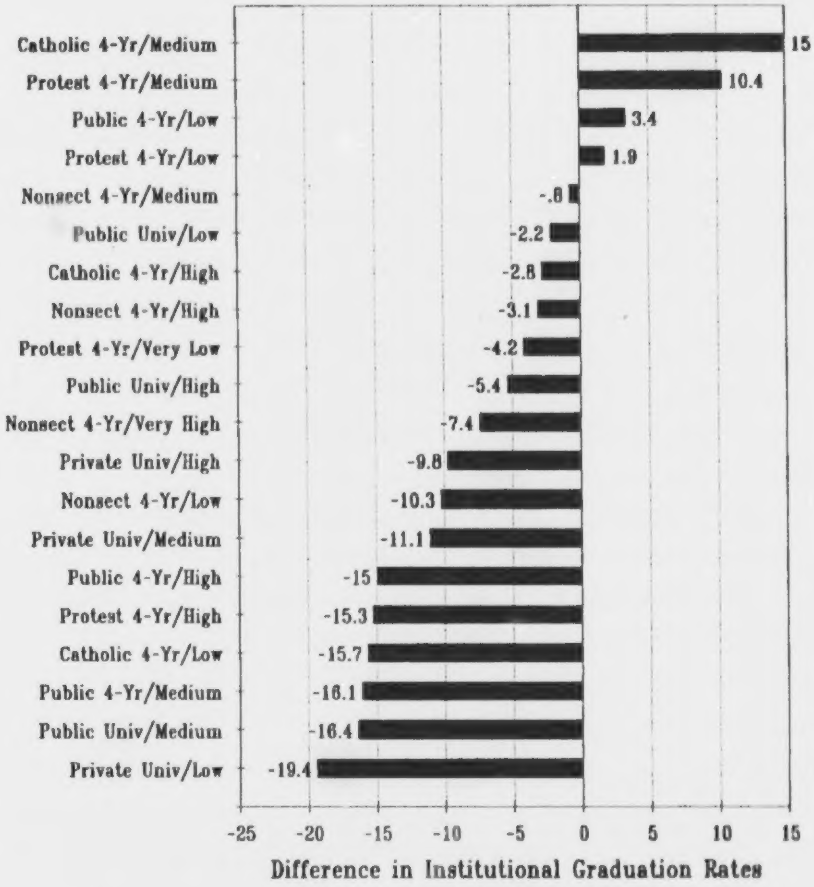
Difference in Six-Year Institutional Graduation Rates between Pell Grant and Non-Pell Grant Recipients with SAT Scores of 1001 to 1099 by Institutional Control, Type and Academic Selectivity



The failures of federal and state policy makers to meet the needs of students become glaringly apparent at the institutional level. Here is where enrollment occurs (or does not occur) and higher educational services are delivered to students. Here is where the retreat from social commitment to broadened higher educational opportunity becomes apparent:

- In 1997 the chance that a student from the top quartile of family income (above about $74,000 per year) would earn a bachelor's degree by age 24 was 57.1 percent. This was an *increase* of 28.0 percentage points over 1980.
- In 1997 the chance that a student from the third quartile of family income (between $47,000 and $74,000 per year) would earn a bachelor's degree was 21.1 percent. This was an *increase* of 1.8 percentage points over 1980.
- In 1997 at the second quartile of family income ($25,000 to $47,000), the bachelor's degree attainment rate was 15.2 percent. This was as *increase* of 5.1 percent over 1980.
- In the bottom quartile of family income (below $25,000), the

Difference in Six-Year Institutional Graduation Rates between Pell Grant and Non-Pell Grant Recipients with SAT Scores of 1100 or More by Institutional Control, Type and Academic Selectivity



chance for earning a bachelor's degree was 4.8 percent in 1997. This was a *decrease* of 1.0 percent from 1980.

The result of the federal and state policy shift has been steadily growing inequality of higher educational opportunity for students from different family income backgrounds over the last two decades.

For students from low income family backgrounds, this environment presents formidable obstacles to higher education. Nevertheless, the data and study reported here have highlighted institutional avenues that improve students' chances for successful completion of undergraduate study.

Pell Grants are only awarded to students from low income family backgrounds. These students have by far the lowest high school graduation rates, the lowest college continuation rates, and the lowest college graduation rates. Moreover, educational opportunity has been deteriorating for these students for the last twenty years. These students do not have much working in their favor.

However, our analysis of HERI's 1985 freshman follow-up file leads to a major finding important to students from low income family backgrounds.

> *Institutional graduation rates for Pell Grant recipients (students from low income family backgrounds) increase with the admissions selectivity of the institution where they begin their studies.*

This same finding holds for students who do not receive Pell Grants as well. This study finds that graduation from college for Pell Grant recipients increases with academic selectivity for students at all levels of SAT scores, in both public and private institutions, and in both universities and 4-year colleges.

Roughly speaking, institutional graduation rates increase for Pell Grant recipients by about 10 percentage points for each increase in level of academic selectivity. (IGRs for students who do not receive Pell Grants increase by about 15 percentage points for each increase in level of academic selectivity.)

Across types and controls of institutions, Pell Grants at all SAT levels have the greatest chance of graduating with a bachelor's degree within six years at institutions that practice highly selective admissions. Their chances of graduating are lowest in the institutions that practice least selective admissions.

The message for students from low income families is clear in this data: go for the best institution that will admit you.

Note: The spreadsheet summarizing our analysis is available on-line at:
http://www.postsecondary.org
Look on the spreadsheets page.

Family Income by Educational Attainment and Race/Ethnicity

1998

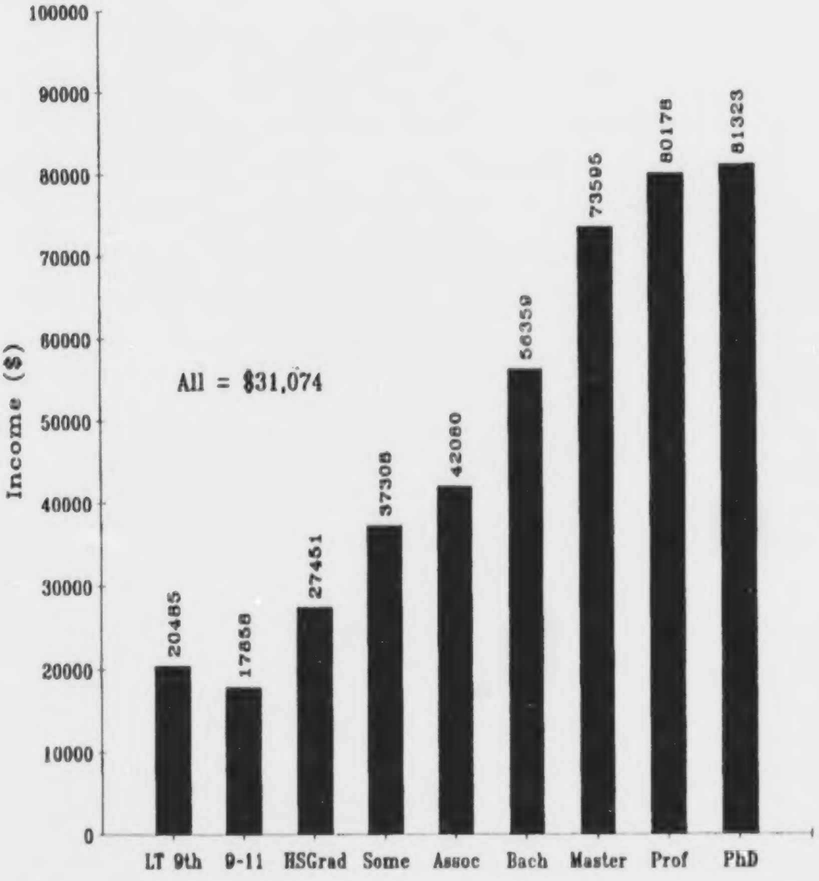
The Census Bureau has recently published for the first time family income data by educational attainment of householder by race/ethnicity. These data are for 1998. The racial/ethnic categories are: white, black, Hispanic and non-Hispanic white.

The Census Bureau has published data on mean and median family income by educational attainment of householder for all families for many decades. These data are reported each year in the P60 series of Current Population Reports, usually under the title of *Money Income of Persons, families and Households*. We have reported these data from as far back as 1956.

However, not until now has the Census Bureau compiled these data by race and ethnic categories. This is surprising since the Census Bureau has reported data on earnings and income by gender and major racial/ethnic groups for many years.

We report these data here because of the popularity of OPPORTUNITY posters on mean and median family income by educational attainment of householder. We have published these posters for the last five years and receive many orders for additional copies. The addition here is race/ethnicity. The same patterns hold for all groups: more education leads to higher income and living standards.

Median Family Income for Black Families by Educational Attainment of Householder 1998



Source: Census Bureau

The Data

The Census Bureau collects income data in the March Supplement to the Current Population Survey (CPS). The basic CPS is a monthly survey of the civilian, noninstitutional population age 15 years and over for the purpose of gathering labor force data. Data are gathered from a sample of about 50,000 households located in all 50 states. The March Supplement to the CPS asks questions about money income received in the previous calendar year.

Most of the income data collected in the March CPS are tabulated and reported in the P60 series of Current Population Reports. However, additional data are tabulated from this survey and is published on the Census Bureau's website:

http://ferret.bls.census.gov/macro/031999/faminc/new01_000.htm

We were guided to this source by Carmen DeNavas of the Income Statistics Branch of the Census Bureau.

Our past experience reporting these data make it clear that many users are not familiar with important Census Bureau definitions used in collecting, compiling and reporting these data. The following are key definitions and concepts used with these data:

- *Income* includes: earnings, unemployment compensation, workers' compensation, social security, supplemental security income, public assistance, veterans' payments, survivor benefits, disability benefits, pension or retirement income, interest, dividends, rents/royalties/estates/trusts, educational assistance, alimony, child support, financial assistance from outside of the household, and other income.
- *Family* refers to a group of two or more people related by birth, marriage or adoption who live together in the same housing unit.
- *Householder* refers to the person who owns or rents the housing unit. If a married couple owns the housing unit jointly, either may be listed as the householder.

Moreover, since nearly everyone who reads OPPORTUNITY works in education, readers must understand that educators are among the lowest paid professionals in the labor force. The average earnings of educators are far below those of engineers, those in business, and most other industries.

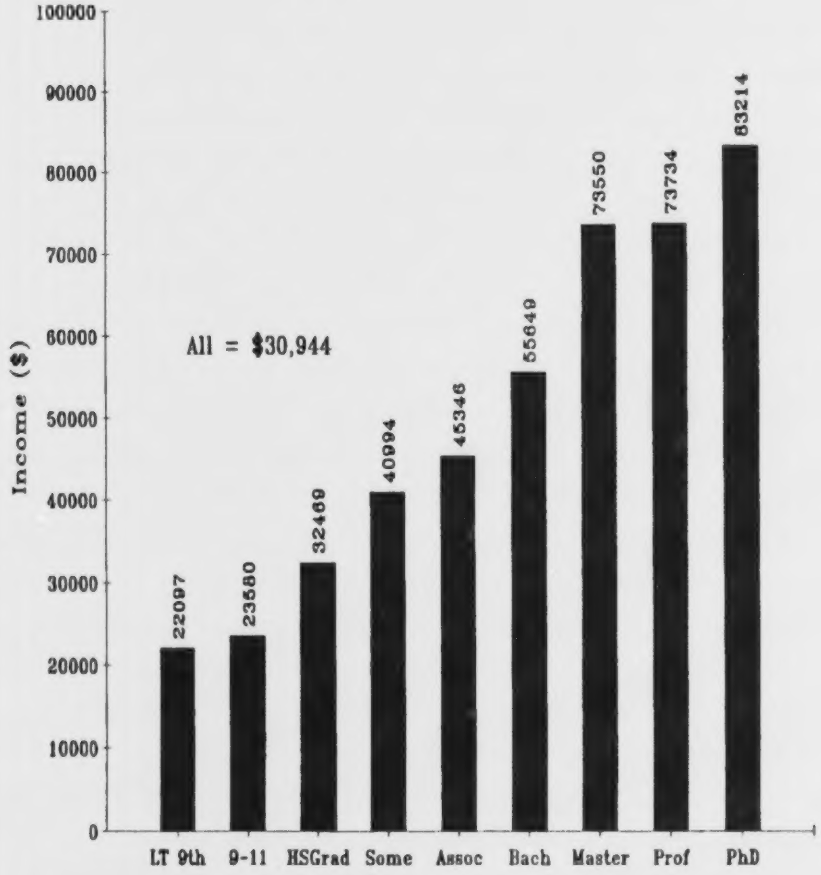
Finally, reader/user feedback indicates a preference for data on medians rather than means/averages. *Medians* are the midpoint in the distribution of a group, with half of the group having greater family incomes and half having lesser family incomes. *Means or averages* are calculated by dividing the total income of a group by the number in the group. Means can be skewed

Family Income by Educational Attainment of Householder
by Race/Ethnicity, Age 25 Years and Over
1998

Educational Attainment	All Races	White	Black	Hispanic	Non-Hispanic White
	Median Family Income				
LT 9th Grade	$22,328	$22,697	$20,485	$22,097	$23,144
9th-11th Grade	26,707	29,308	17,858	23,580	30,884
High School Grad	41,302	43,269	27,451	32,469	44,493
Some College	48,495	50,653	37,308	40,994	51,382
Associate	54,719	56,044	42,080	45,346	56,875
Bachelors	71,680	72,954	56,359	55,649	73,832
Masters	83,052	83,649	73,595	73,550	84,003
Professional	100,000	100,000	80,178	73,734	100,000
Doctorate	96,945	98,169	81,323	83,214	98,434
Total	$48,194	$50,320	$31,074	$30,944	$52,585
	Mean Family Income				
LT 9th Grade	$29,547	$29,811	$24,558	$28,653	$30,659
9th-11th Grade	33,356	35,934	23,783	30,271	37,500
High School Grad	48,434	50,462	34,827	40,552	51,447
Some College	57,315	59,500	43,105	47,612	60,583
Associate	63,524	65,233	48,155	48,698	66,501
Bachelors	85,423	87,748	62,662	68,062	88,700
Masters	101,670	103,312	82,053	95,719	103,567
Professional	147,170	153,045	86,930	111,947	155,399
Doctorate	123,796	126,735	90,211	143,511	126,296
Total	$60,988	$63,656	$40,076	$41,308	$66,410

Source: http://ferret.bls.census.gov/macro/031999/faminc/new01_000.htm

Median Family Income for Hispanic Families
by Educational Attainment of Householder
1998



Source: Census Bureau

upward by a few families in the group making unusually large incomes. We report both medians and means in the table, but chart only the median family income data.

Family Income by Race/Ethnicity

In 1998 median family income for all families was $48,194. For non-Hispanic white families median income was $52,585--by far the highest for any racial/ethnic group. For black families median family income was $31,074, or 59.1 percent of the median for non-Hispanic whites. For Hispanic families median family income was $30,944, or 58.8 percent of the median for non-Hispanic white families.

Median family income varied directly with educational attainment--just as it always does. For all races, median family income ranged from $22,328 for families headed by a person with less than a ninth grade education, to $100,000 for families headed by persons with a professional degree.

Similar progressions of median family income with educational attainment occurs in each of the three racial/ethnic groups reported by Census.

- For non-Hispanic white families, median family income ranged from $23,144 for families headed by persons with less than a ninth grade education, to $100,000 for families headed by persons with a professional degree.
- For black families, median family income was lowest at $17,858 for families headed by persons with a ninth to eleventh grade education and highest at $81,323 for families headed by a persons with a doctorate.
- For Hispanic families, median family income ranged from $22,097 for families headed by persons with less than a ninth grade education, to $83,214 for families headed by persons with a doctorate.

Minority Family Income Compared to Non-Hispanic Whites

Median family income for all black and Hispanic families was about 59 percent of median income for non-Hispanic white families. These differences can be attributed to many measurable factors including age, years of work experience, location, hours worked, and other factors.

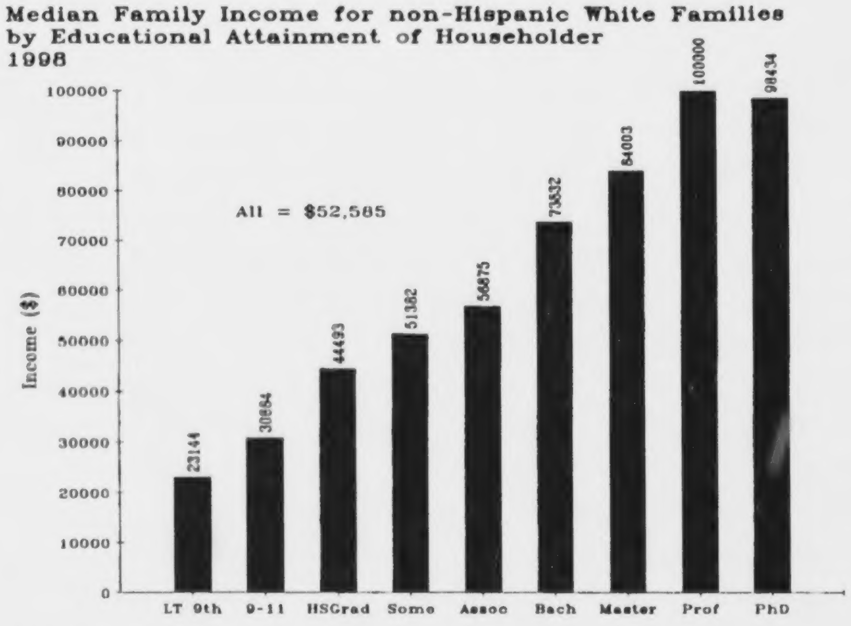
However, this very large gap is reduced when educational attainment is controlled. For example:

- Among families headed by persons with a high school diploma, median family income for blacks was 62 percent that of non-Hispanic whites, and for Hispanics is was 73 percent.
- At the bachelor's degree level, median family income for blacks was 76 percent that of non-

-Hispanic whites, and Hispanic family income was 75 percent that of non-Hispanic white families.

- At the doctorate level the differences are reduced further: 83 percent for blacks and 85 percent for Hispanics.

Clearly, differences in educational attainment between black, Hispanic and non-Hispanic white family householders explain much of the large differences in median family incomes. But far more important, these differences are substantially reduced at the highest levels of educational attainment. Blacks and Hispanics gain absolutely with educational attainment as their charts show in this report. But they gain relatively compared to non-Hispanic whites with collegiate education.


Median Family Income for non-Hispanic White Families by Educational Attainment of Householder 1998

Source: Census Bureau

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The Mortenson Research Seminar on Public Policy Analysis of Opportunity for Postsecondary Education

Number 92 **www.postsecondary.org** **February 2000**

An editorial … *Who really needs financial aid?*

President Clinton's Proposed Tax Credit Extensions: Misdirected Resources, Bad Tax Policy, Unintended Consequences

On January 20, President Clinton announced his proposal for a *College Opportunity Tax Cut.* This program is an extension of his Hope and Lifetime Learning Tax Cut enacted in 1997. This proposal involves either an income tax deduction or a tax credit. The income cap of $100,000 in the 1997 law would be extended to families earning up to $120,000 per year. The tax credit is not refundable, and thus would not be available to families too poor to pay federal income taxes.

The White House estimates that this would cost $30 billion over 10 years. When fully phased in by 2003, The President's proposal would provide up to $2800 of tax relief regardless of need for families paying for college. The White House announcement is available on-line at:

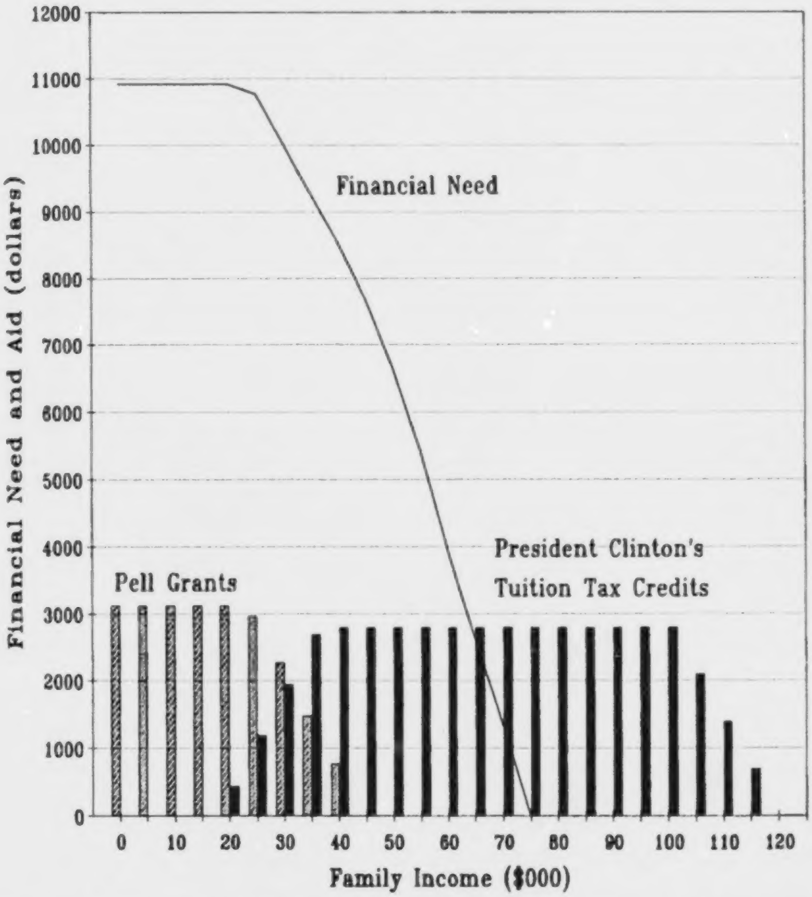
> http://www.whitehouse.gov/WH/New/html/20000120_1.html

The editorial position of OPPORTUNITY is that this initiative is badly misdirected, misuses the tax code and has unintended consequences that hurt poor people. It should not be enacted by Congress.

We opposed President Clinton's original proposal in February 1995 (see OPPORTUNITY #32) for similar reasons. The flaws in the original proposal are not addressed in the current proposal, but in fact are made worse. It is not targeted to people who need financial assistance to finance their higher educations. It is not needs-tested. Much of the benefit would go to people who do not need it and who already receive more aid than they need for college.

Instead we support need-based grants targeted to students and families with demonstrated financial need to pay college attendance costs.

Distribution of Financial Need, Pell Grants and Clinton Tuition Tax Credits by Family Income for Residents in Public 4-Year Colleges and Universities 1999-2000



The current tax credit proposal has already been criticized in editorials in the *New York Times* (January 22) and *Washington Post* (January 26) for reasons similar to those cited here.

Who *Needs* Student Financial Aid

The concept of financial need to pay college attendance costs is defined in *federal* statute under Part F of Title IV of the Higher Education Act of 1965 as amended. This law was last reauthorized in 1998, with the amendments signed into law by President Clinton himself.

In summary, the federal definition of financial need from Part F is:

Cost of attendance
minus Expected family contribution
equals Need for financial assistance

Nearly all federal student financial aid is awarded to students on the above bases for determining financial need. By this federal statutory definition, those who *need* financial aid are those whose expected family contribution is less than cost of attendance.

The President's tax credits are not need-based since their is no needs-test for eligibility. Some of the tax credit benefit will go to needy students and their families. But much of the tax benefit will go to students whose expected family contribution exceeds cost of attendance. Hence, by federal definition, these students are not financially needy and not deserving or qualified to receive need-based federal financial aid.

So who actually *needs* financial aid to help pay college attendance costs? The answer depends on college attendance costs (COA) and the expected family (EFC) that results from the federal methodology.

For illustration, we use here the case of a dependent undergraduate student, family size of 4 with just the student enrolled in college.

Costs of attendance for the current 1999-2000 academic year were recently reported by The College Board in its *Trends in College Pricing 1999*. National averages reported were:

Public 2-year:	
Commuter	$6,599
Private 2-year:	
Resident	$14,264
Commuter	$11,956
Public 4-year:	
Resident	$10,909
Commuter	$8,774
Out-of-state	$16,259
Private 4-year:	
Resident	$23,651
Commuter	$20,500

These costs of attendance can be converted to the family income levels above which students are no longer financially needy. Here we have used the New York State Higher Education Services Corporation's ABLE software for 1999-2000 to calculate the EFC at each family income level under the Federal Methodology. For example:

If income is:	Expected family contribution is:
$0	$0
$10,000	$0
$20,000	$0
$30,000	$889
$40,000	$2,371
$50,000	$4,250
$60,000	$6,987
$70,000	$9,603
$80,000	$12,449
$90,000	$15,295
$100,000	$18,141
$110,000	$20,987
$120,000	$23,832

Thus, a student from a family earning $60,000 per year is not financially needy at an average cost public 2-year college. That family's EFC of $6987 exceeds the average cost of attendance

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Mission Statement

This research letter is founded on two fundamental beliefs. First, sound public social policy requires accurate, current, independent, and focused information on the human condition. Second, education is essential to the development of human potential and resources for both private and public benefit. Therefore, the purpose of this research letter is to inform those who formulate, fund, and administer public policy and programs about the condition of and influences that affect postsecondary education opportunity for all Americans.

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Similarly, at about $75,000 of family income, the EFC equals the average cost of attendance at a public 4-year college or university of $10,909 for a campus resident. Students from families with incomes of greater than $75,000 are not generally financially needy insofar as their EFC is greater than attendance costs.

At an average cost private 4-year college or university of $23,651, the corresponding family income that would generate an equivalent EFC is about $120,000 (EFC = $23,832). Thus, above $120,000 of family income a dependent student would not demonstrate financial need.

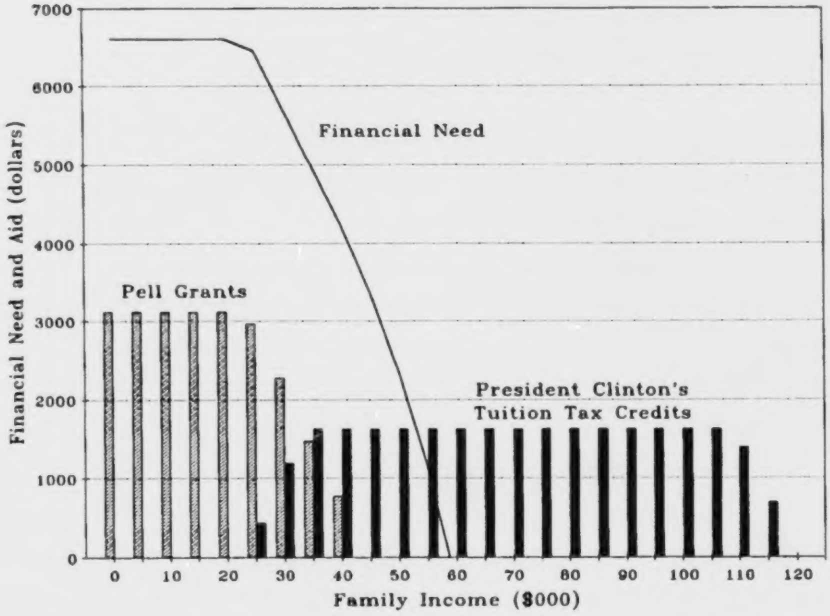
The above examples are meant to illustrate general cases. Obviously families with more than one child in college would become financially needy at considerably lower income levels than those shown here. Similarly, families with significant assets would become financially needy at higher income levels than those shown here. These examples are meant to illustrate the general point than financial need is determined largely by costs of attendance and family income--a consideration ignored in President Clinton's federal income tax credit/deduction schemes.

Unmet Financial Need

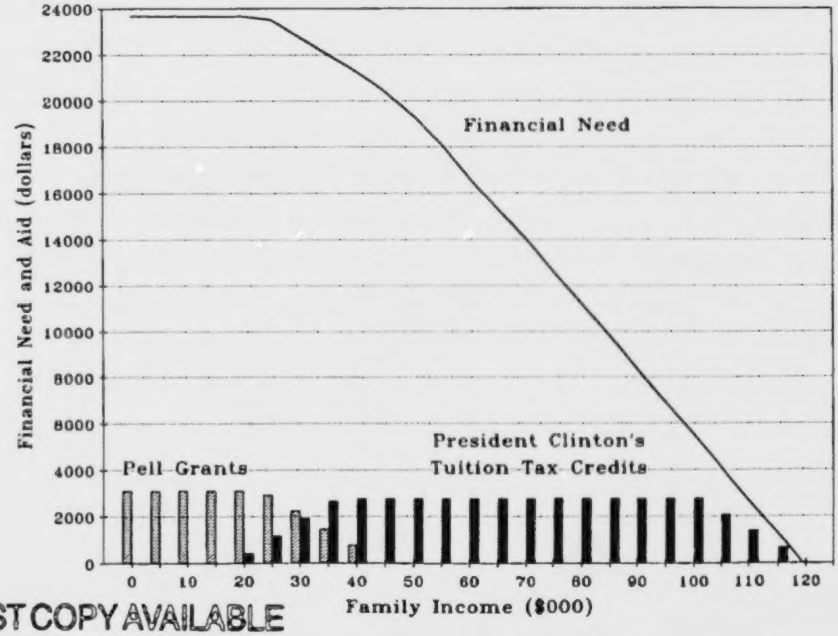
For the 1998-99 academic year, about $64.1 billion in federal, state and institutional financial aid was awarded to students, according to the financial aid tabulation reported by The College Board in *Trends in Student Aid 1999*.

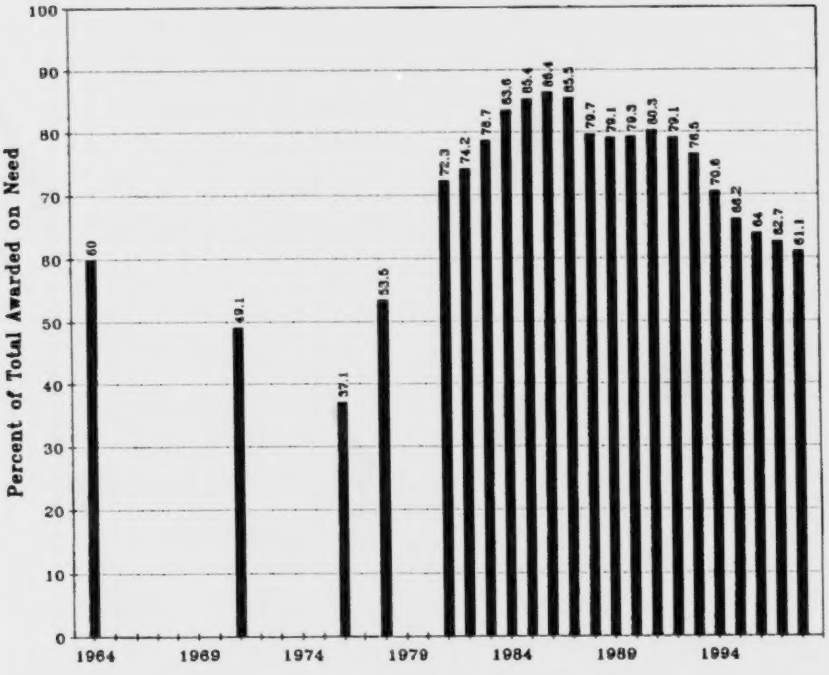
Need-based versus non-need-based aid. Most of the federal, state and institutional grants are awarded on the basis of demonstrated financial need, and these mainly go to those from low or lower-middle family incomes where financial need is clear and compelling.

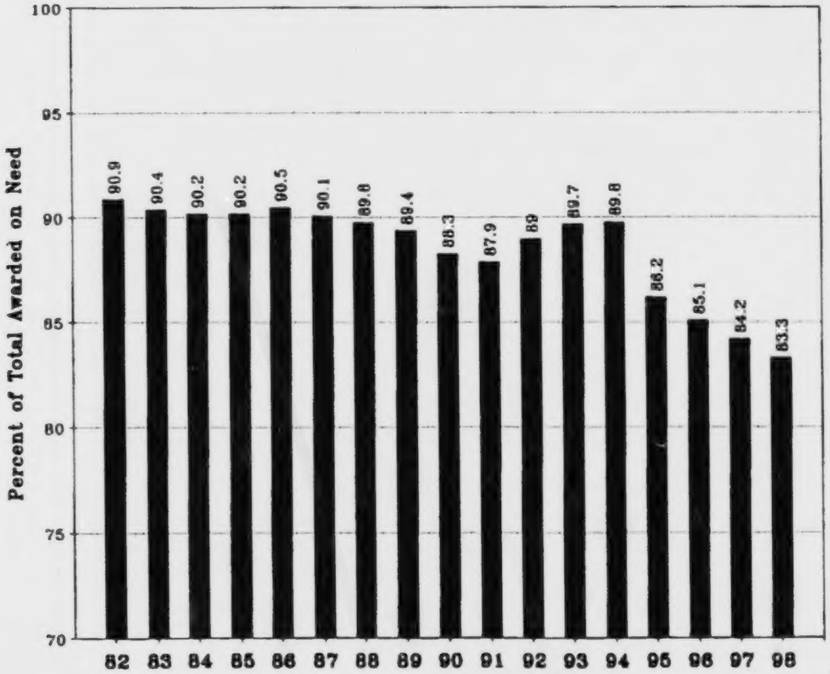
Distribution of Financial Need, Pell Grants and Clinton Tuition Tax Credits by Family Income for Commuters in Public 2-Year Colleges and Universities 1999-2000



Distribution of Financial Need, Pell Grants and Clinton Tuition Tax Credits by Family Income for Residents at Private 4-Year Colleges and Universities 1999-2000




Federal Student Financial Aid Based on Need 1964 to 1998


State Student Financial Aid Based on Need 1982 to 1998

However, a growing share of financial aid is not awarded based on need and is deliberately or apparently directed to those from higher family income backgrounds that often cannot demonstrate financial need. This new financial aid has been created in the 1980s and 1990s. This is in the form of:

- Merit scholarships (which may, as in the case of Georgia's HOPE Scholarship Program, exclude poor people, but in any case is sharply tilted away from lower family income students),
- Unsubsidized educational loans (which by definition are not needed),
- Tax credits (which in the existing federal case exclude poor people), and
- Tax-favored college savings programs (bonds and pre-paid tuition, which are targeted to those with discretionary income).

At the federal level, the proportion of financial aid awarded based on demonstrated financial need has declined from a peak of 86.4 percent in 1986 to 61.1 percent by 1998. This will almost certainly continue to decline further as the 1997 Hope and Lifetime Learning Tax Credits are added to the non-need based federal student financial aid tabulation and unsubsidized educational loans continue to grow.

At the state level, the share of state student financial aid awarded on the basis of financial need stood close to 90 percent from 1982 through 1994. However, as the very large Georgia HOPE Scholarship program has come on line, this share has dropped to 83.3 percent by 1998. This proportion too is likely to drop for the foreseeable future as other recently enacted state merit-based scholarship programs come on line.

It is important to note that most non-need based student aid programs remain available to students from low income family backgrounds. (The major exceptions are Georgia's HOPE Scholarship program, which will correct this defect in the current legislative session, and President Clinton's Hope and Lifetime Learning Tax Credits which deliberately exclude those too poor to pay federal income taxes.)

However, by conscious political design, these new non-need-based federal and state financial aid initiatives are directed toward students from higher family incomes and even outright wealthy students and their families. This appears to reflect a political interest in addressing concerns of those who vote more than it is an interest in meeting the financial needs of students.

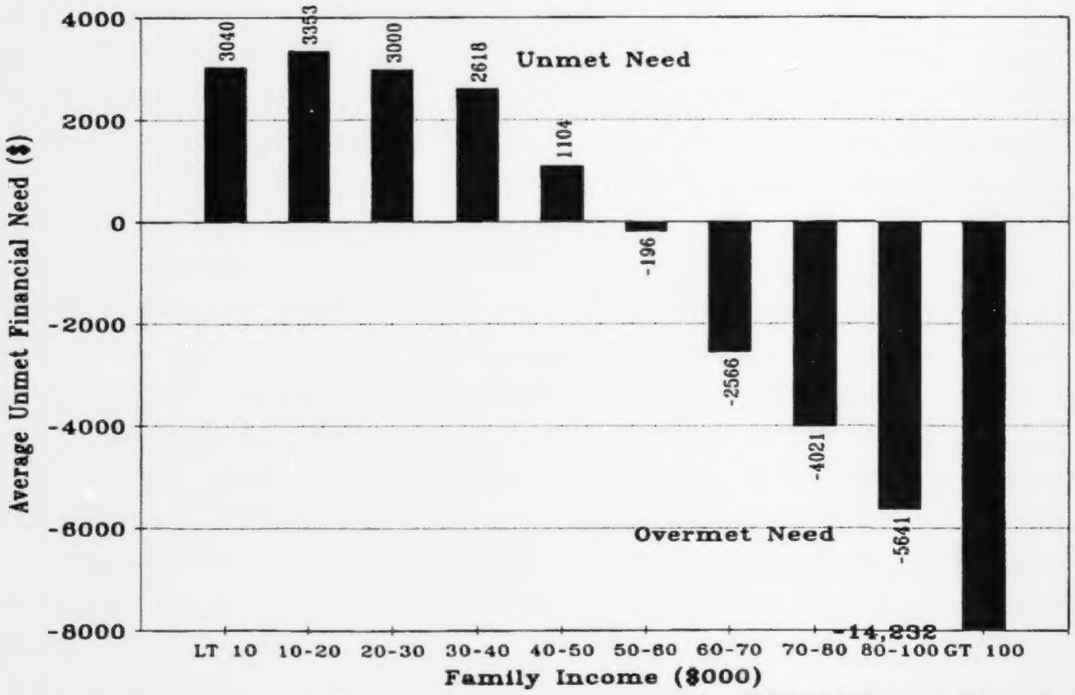
Unmet financial need. Given these non-need-based financial aid program initiatives, it behooves us to revisit the unmet financial needs of students across all family income levels. Unmet financial need is what is left over after all grants, scholarships, educational loans and earnings from on-campus employment have been deducted from the financial need of the student.

Two recent state studies and one federal analysis have examined the financial need and unmet financial need of undergraduate college students. The state studies were done in New Mexico and Colorado in 1999, and the federal study was based on the 1996 NPSAS file and was also done in 1999.

These three studies produced nearly identical findings, and thus indicate that they describe the general state of unmet need among undergraduates in U.S. colleges and universities. The findings are that among full-time, full-year dependent undergraduate students, unmet financial need is greatest among students who come from families with incomes below about $30,000.

- Below $30,000 family incomes, students face average unmet financial needs of about $3000 to $3300.
- Between $30,000 and $40,000 of family income, unmet need is about $2500 to $2600.
- Between $40,000 and $50,000 of family income, unmet need averages about $1100 to $1500.
- Between $50,000 and $60,000 of family income, on average there is no unmet financial need. In this income range aided undergraduates receive on average $0 to $800 more in financial aid than they need.
- Between $60,000 and $70,000 of family income, aided students receive on average $2300 to $2600 more in financial aid than they need.

Unmet Financial Need for Dependent Undergraduate Students Who Receive Financial Aid 1995-96



Source: NPSAS96.

And it gets much worse at higher levels of family income where the President's 1997 tax credits are still operating:

- Between $70,000 and $80,000 of family income, on average aided undergraduates received $4000 to $5000 more financial aid than they need.
- Between $80,000 and $100,000 of family income, aided students receive an average of $5600 to $8600 more in financial aid than they need.

The President's current proposal is to raise the family income limit from the existing $100,000 to a proposed $120,000. Our data on unmet financial need of college students are limited at these very high family income levels. However, the NPSAS96 data indicate that financially aided students from incomes above $100,000 per year had about $14,200 more from family and financial aid than they needed to finance their costs of attendance. In the New Mexico study, these students had about $22,000 more from family and financial aid than they needed to pay their college attendance costs. In Colorado it was about $16,000 beyond need.

Of course, as we said earlier, financial need depended primarily on costs of attendance and the family's expected family contribution. The costs of attendance vary significantly between public 2-year, public 4-year and private 4-year institutions. For example, a student from a family with an income of $60,000 per year shows $16,664 of need at a private 4-year college, $3,922 at a public 4-year college and -$388 at a public 2-year college.

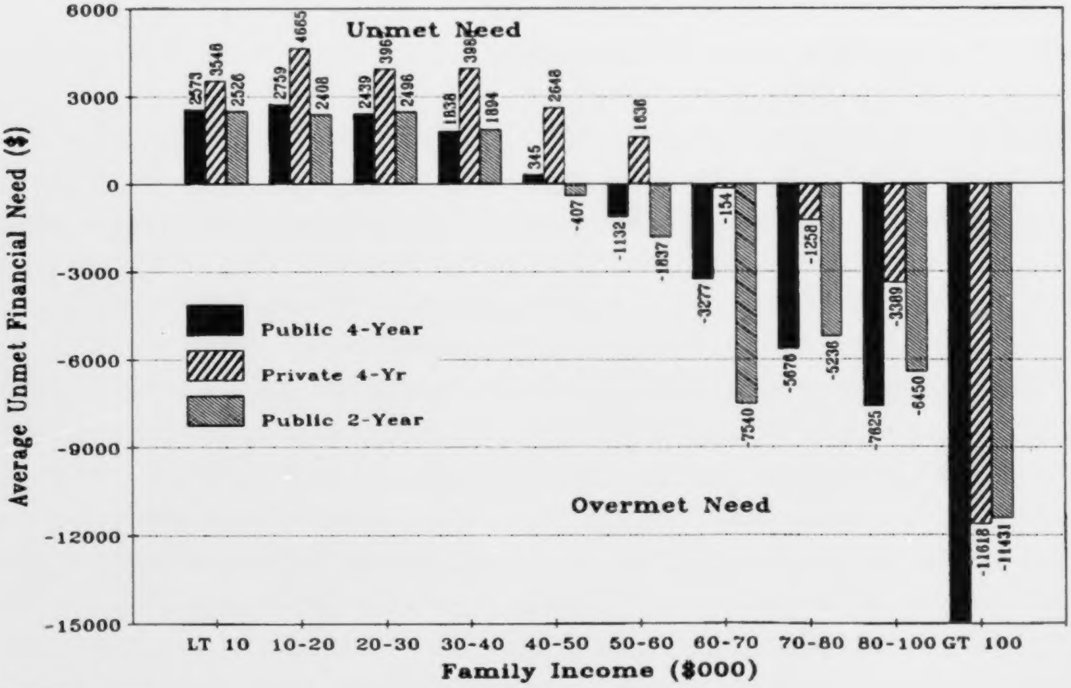
Even after the awarding of financial aid to students, below about $50,000 of family income, remaining unmet financial need is consistently greater in private 4-year colleges than it is in either 2-year or 4-year public institutions. Above $50,000 of family income, where financial need is overmet, aided undergraduates in public institutions receive considerably more aid beyond need than do students in private institutions.

Thus, any analysis of financial need or unmet financial need must be sensitive to the EFCs and COAs faced by students. This is, of course, what financial aid administration is all about

The College Opportunity Tax Cut

President Clinton's College Opportunity Tax Cut proposes to extend the tax credit structure of his 1997 Hope and Lifetime Learning Tax Credit. He proposes to both raise the

Unmet Financial Need for Dependent Undergraduate Students by Institutional Type/Control 1995-96



Source: NPSAS96

tax credit benefit by $1300 for those currently eligible, and to raise the income cap from $100,000 to $120,000 of family income.

We see three main problems with the current tax credit adopted in 1997, and none of these problems are addressed in the proposed extensions to the 1997 law:

- It is misdirected, away from those who need it most and toward those who often do not need it at all.
- It further complicates an already complex and intimidating federal income tax system.
- It has unintended consequences that hurt college affordability for those with lowest family income.

First, the College Opportunity Tax Cut proposal is misdirected because it is *not need-based.* The tax cut is available to students and their families, whether or not they can demonstrate any financial need for it. But it is available only for families earning enough income to pay federal income taxes--not those too poor to pay federal income taxes.

All qualifying families have to do to claim the tax credit or refund is show that they paid the tuition. Because it excludes the poor, it excludes those in most desperate need for financial aid to attend college. Because it is not need based, much of the tax benefit will go to families that do not have any demonstrated financial need for it. These families are those most likely to send their children to college anyway. In this respect, the tax credit is a windfall to families rather than a social investment to broaden educational opportunities.

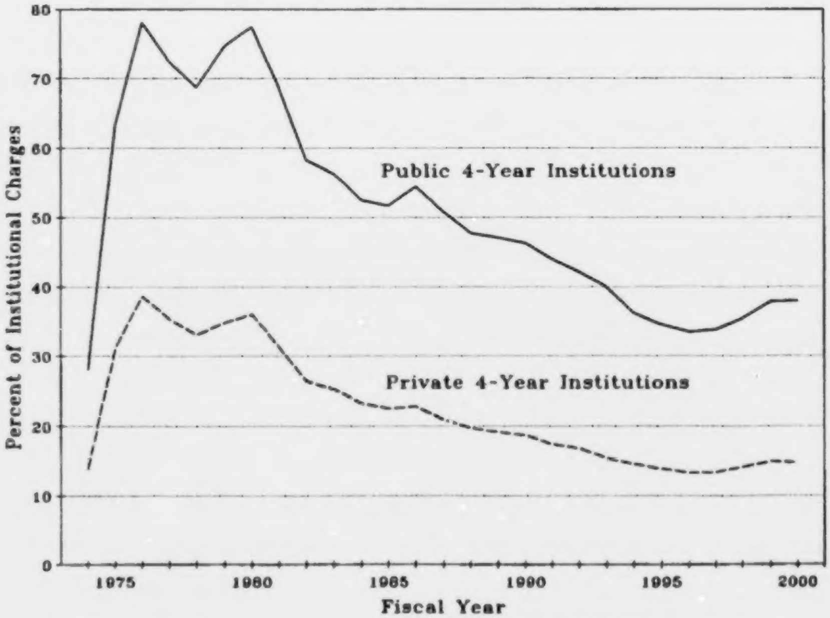
Second, the use of the tax code to foster education is at least a complication to an already formidably complex undertaking. It will impose considerable costs to higher education if and when the Internal Revenue Service requires institutions to verify tax credits claimed by tax filers. Moreover, the tax credit or deduction will not reach the family until well after the family needs the money to pay college tuition and fees.

Third, there are likely unintended consequences to this proposal which would adversely impact educational opportunity for those already least well represented in higher education. Despite federal pressures to restrain institutional price increase, the knowledge that families now have more money relieves institutions of the need to moderate price increases. So if institutions continue to raise prices, as they have throughout the 1990s, then the poor who are excluded from the tax credit are worse off than if the tax credits had not been enacted.

Finally, is this the best way to use the $30 billion over 10 years that the College Opportunity Tax Cut would cost? We think not. There are huge unmet financial needs for students from families with incomes below $40,000 per year. There appears to be no unmet need for students from families with incomes above about $60,000 per year.

In our view, if $30 billion over the next 10 years is available for additional financial aid funding, it should be spent where it is clearly needed. It should go to the Pell Grant program. Each $100 increase in the Pell Grant maximum award costs the federal government $350 million. Thus, $3 billion per year could buy an $800 increase in the Pell Grant maximum award. If this were leveraged with our proposal for a Pell Academic Challenge Grant (see: http://www.postsecondary.org) the increase could double to $1600 for those who prepare academically with college prep courses for college. That would provide about half of the unmet financial needs of students from family incomes of less than $40,000 per year. Real opportunity gains would result.

Proportion of Institutional Charges*
Covered by Pell Grant Maximum Award
1973-74 to 1999-2000e



* Tuition, fees, room and board only.

Clinton Tuition Tax Credit/Deduction Analysis

				Public 4-Year Colleges and Universities:				Public 2-Year Colleges:				Private 4-Year Colleges and Universities:			
Family Income	Expected Family Contrib.	Estimated Federal Income Tax Paid	Pell Grant	Average C.O.A.	Tuition and Fees	Financial Need	Credit or Deductn	Average C.O.A.	Tuition & Fees	Financial Need	Credit or Deductn	Average C.O.A.	Tuition and Fees	Financial Need	Credit or Deductn
Dependent Undergraduate (family size = 4, 1 child in college, no assets)															
$ -	$ -	$ -	$ 3,125	$ 10,909	$ 3,356	$ 10,909	$ -	$ 6,599	$ 1,627	$ 6,599	$ -	$ 23,651	$ 15,380	$ 23,651	$ -
$ 10,000	$ -	$ -	$ 3,125	$ 10,909	$ 3,356	$ 10,909	$ -	$ 6,599	$ 1,627	$ 6,599	$ -	$ 23,651	$ 15,380	$ 23,651	$ -
$ 20,000	$ -	$ 443	$ 3,125	$ 10,909	$ 3,356	$ 10,909	$ 443	$ 6,599	$ 1,627	$ 6,599	$ 443	$ 23,651	$ 15,380	$ 23,651	$ 443
$ 25,000	$ 148	$ 1,193	$ 2,975	$ 10,909	$ 3,356	$ 10,761	$ 1,193	$ 6,599	$ 1,627	$ 6,451	$ 1,193	$ 23,651	$ 15,380	$ 23,503	$ 1,193
$ 30,000	$ 889	$ 1,943	$ 2,275	$ 10,909	$ 3,356	$ 10,020	$ 1,943	$ 6,599	$ 1,627	$ 5,710	$ 1,627	$ 23,651	$ 15,380	$ 22,762	$ 1,943
$ 35,000	$ 1,630	$ 2,693	$ 1,475	$ 10,909	$ 3,356	$ 9,279	$ 2,693	$ 6,599	$ 1,627	$ 4,969	$ 1,627	$ 23,651	$ 15,380	$ 22,021	$ 2,693
$ 40,000	$ 2,371	$ 3,443	$ 775	$ 10,909	$ 3,356	$ 8,538	$ 2,800	$ 6,599	$ 1,627	$ 4,228	$ 1,627	$ 23,651	$ 15,380	$ 21,280	$ 2,800
$ 45,000	$ 3,223	$ 4,193	$ -	$ 10,909	$ 3,356	$ 7,686	$ 2,800	$ 6,599	$ 1,627	$ 3,376	$ 1,627	$ 23,651	$ 15,380	$ 20,428	$ 2,800
$ 50,000	$ 4,250	$ 4,943	$ -	$ 10,909	$ 3,356	$ 6,659	$ 2,800	$ 6,599	$ 1,627	$ 2,349	$ 1,627	$ 23,651	$ 15,380	$ 19,401	$ 2,800
$ 55,000	$ 5,490	$ 6,213	$ -	$ 10,909	$ 3,356	$ 5,419	$ 2,800	$ 6,599	$ 1,627	$ 1,109	$ 1,627	$ 23,651	$ 15,380	$ 18,161	$ 2,800
$ 60,000	$ 6,987	$ 7,613	$ -	$ 10,909	$ 3,356	$ 3,922	$ 2,800	$ 6,599	$ 1,627	$ (388)	$ 1,627	$ 23,651	$ 15,380	$ 16,664	$ 2,800
$ 70,000	$ 9,603	$ 10,413	$ -	$ 10,909	$ 3,356	$ 1,306	$ 2,800	$ 6,599	$ 1,627	$ (3,004)	$ 1,627	$ 23,651	$ 15,380	$ 14,048	$ 2,800
$ 80,000	$ 12,449	$ 13,213	$ -	$ 10,909	$ 3,356	$ (1,540)	$ 2,800	$ 6,599	$ 1,627	$ (5,850)	$ 1,627	$ 23,651	$ 15,380	$ 11,202	$ 2,800
$ 90,000	$ 15,295	$ 16,013	$ -	$ 10,909	$ 3,356	$ (4,386)	$ 2,800	$ 6,599	$ 1,627	$ (8,696)	$ 1,627	$ 23,651	$ 15,380	$ 8,356	$ 2,800
$ 100,000	$ 18,141	$ 18,813	$ -	$ 10,909	$ 3,356	$ (7,232)	$ 2,800	$ 6,599	$ 1,627	$ (11,542)	$ 1,627	$ 23,651	$ 15,380	$ 5,510	$ 2,800
$ 110,000	$ 20,987	$ 21,770	$ -	$ 10,909	$ 3,356	$ (10,078)	$ 1,400	$ 6,599	$ 1,627	$ (14,388)	$ 814	$ 23,651	$ 15,380	$ 2,664	$ 1,400
$ 120,000	$ 23,832	$ 24,870	$ -	$ 10,909	$ 3,356	$ (12,923)	$ -	$ 6,599	$ 1,627	$ (17,233)	$ -	$ 23,651	$ 15,380	$ (181)	$ -
Independent Undergraduate (family size = 3, 1 parent in college, no assets)															
$ -	$ -	$ -	$ 3,125	$ 8,774	$ 3,356	$ 8,774	$ -	$ 6,599	$ 1,627	$ 6,599	$ -	$ 20,500	$ 15,380	$ 20,500	$ -
$ 5,000	$ -	$ -	$ 3,125	$ 8,774	$ 3,356	$ 8,774	$ -	$ 6,599	$ 1,627	$ 6,599	$ -	$ 20,500	$ 15,380	$ 20,500	$ -
$ 10,000	$ 643	$ -	$ 2,475	$ 8,774	$ 3,356	$ 8,131	$ -	$ 6,599	$ 1,627	$ 5,956	$ -	$ 20,500	$ 15,380	$ 19,857	$ 443
$ 15,000	$ 2,776	$ -	$ 400	$ 8,774	$ 3,356	$ 5,998	$ -	$ 6,599	$ 1,627	$ 3,823	$ -	$ 20,500	$ 15,380	$ 17,724	$ 1,193
$ 20,000	$ 4,550	$ 720	$ -	$ 8,774	$ 3,356	$ 4,224	$ 720	$ 6,599	$ 1,627	$ 2,049	$ 720	$ 20,500	$ 15,380	$ 15,950	$ 1,943
$ 25,000	$ 6,309	$ 1,470	$ -	$ 8,774	$ 3,356	$ 2,465	$ 1,470	$ 6,599	$ 1,627	$ 290	$ 1,470	$ 20,500	$ 15,380	$ 14,191	$ 2,693
$ 30,000	$ 8,068	$ 2,200	$ -	$ 8,774	$ 3,356	$ 706	$ 2,200	$ 6,599	$ 1,627	$ (1,469)	$ 1,627	$ 20,500	$ 15,380	$ 12,432	$ 2,800
$ 35,000	$ 10,018	$ 2,970	$ -	$ 8,774	$ 3,356	$ (1,244)	$ 2,800	$ 6,599	$ 1,627	$ (3,419)	$ 1,627	$ 20,500	$ 15,380	$ 10,482	$ 2,800
$ 40,000	$ 11,968	$ 3,720	$ -	$ 8,774	$ 3,356	$ (3,194)	$ 2,800	$ 6,599	$ 1,627	$ (5,369)	$ 1,627	$ 20,500	$ 15,380	$ 8,532	$ 2,800
$ 45,000	$ 13,918	$ 4,470	$ -	$ 8,774	$ 3,356	$ (5,144)	$ 2,800	$ 6,599	$ 1,627	$ (7,319)	$ 1,627	$ 20,500	$ 15,380	$ 6,582	$ 2,800
$ 50,000	$ 16,868	$ 5,220	$ -	$ 8,774	$ 3,356	$ (8,094)	$ 2,800	$ 6,599	$ 1,627	$ (10,269)	$ 1,627	$ 20,500	$ 15,380	$ 3,632	$ 2,800
$ 55,000	$ 17,818	$ 5,970	$ -	$ 8,774	$ 3,356	$ (9,044)	$ 1,400	$ 6,599	$ 1,627	$ (11,219)	$ 814	$ 20,500	$ 15,380	$ 2,682	$ 1,400
$ 60,000	$ 19,608	$ 7,039	$ -	$ 8,774	$ 3,356	$ (10,834)	$ -	$ 6,599	$ 1,627	$ (13,009)	$ -	$ 20,500	$ 15,380	$ 892	$ -

Notes and sources:

1. EFC calculated by HESC ABLE software for 1999-2000. ABLE also calculated estimated federal income taxes paid and Pell Grant.
2. COA and Tuition and Fee data from College Board *Trends in College Pricing 1999*, Table 5.
3. Dependent COA is for campus resident in 4-year institutions, commuter in public 2-year colleges. Independent COA is for commuter only.
4. Financial need is COA less EFC.

Preparing for college . . . *. . . and life's opportunities*

Academic Preparation for College by Gender, Race and Family Income, 1983 to 1999

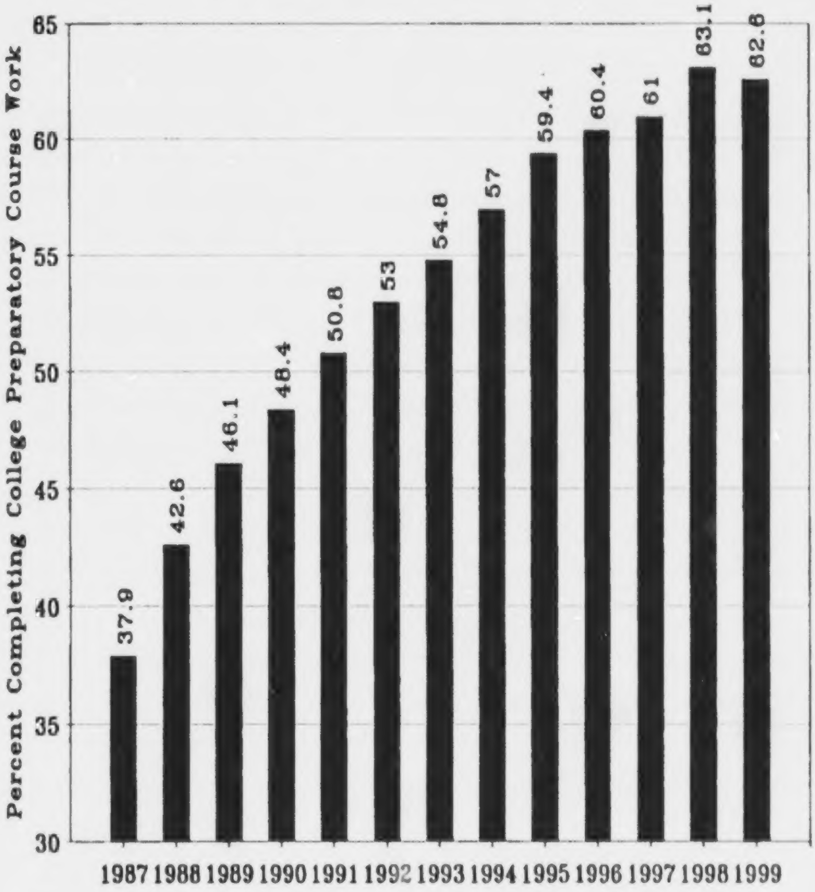
The current educational standards movement in K-12 education began with the monumental report *A Nation at Risk: The Imperative for Educational Reform*, published in 1983. This report has inaugurated nearly two decades of serious state efforts to strengthen the high school curriculum and its antecedents in earlier grades, and to broaden educational testing to progressively higher stakes including high school graduation. This movement continues today as states wrestle the consequences of high stakes testing for students in high school who cannot pass state high school graduation tests.

But the imperative for educational reform actually began a decade earlier, about 1973, as the labor market began to sort out the value of labor according to educational attainment. Until 1973 the economy had always placed a premium on better educated workers. But beginning about 1973, the economic sorting became more ruthless. The economic value of workers with a high school education or less began a long decline that continues today. The economic value of workers with postsecondary education or training continued to increase after 1973. That revaluation also continues today, especially for workers with postbaccalaureate education.

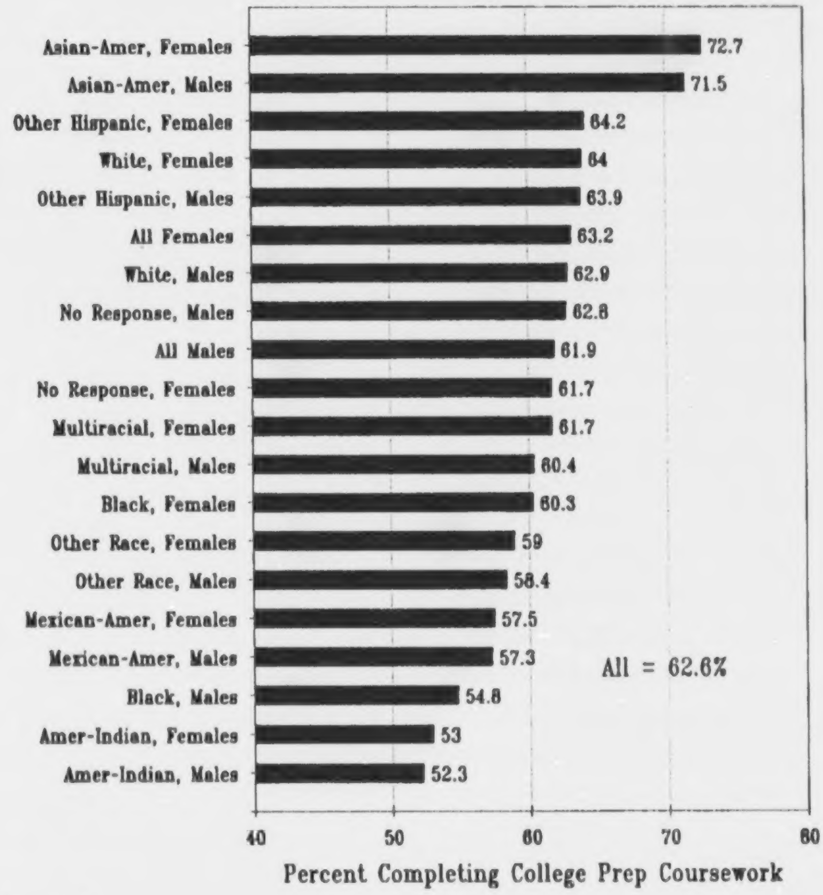
What the labor market has always spoken clearly to is not just the increased and increasing value of education, but also to the content of that education. Its not just educational attainment. Its what that educational attainment represents. The measurement and sorting processes of education conform to economic needs:

- High school graduation has at least four levels of quality (as we examined in the September 1999 issue of OPPORTUNITY), consisting of college prepared graduates, regular high school graduates, GED recipients and those who receive certificates of attendance. The military, labor market and higher education all recognize and accept this pre-sorting process and outcomes, and believe it means something with respect to their needs.
- High stakes testing is now attempting to further sort out high school graduates according to some tested performance standards, with politically untenable results.
- Colleges that practice selective admissions wrestle with various combinations of test scores, high school grades and class rank, essays, interviews and other

College Preparatory Coursework Completion Rate
for ACT-Tested College Bound High School Seniors
1987 to 1999



Source: ACT



College Preparatory Coursework Completion Rate
by Gender and Race/Ethnicity
1999

Source: ACT

screening and sorting devices.

- Among college graduates there are wide ranges in salaries offered to graduates, and later earned by college graduates, according to their fields of study.

At each stage in this sorting process, the education and labor market both work to direct people to different life outcomes.

Public policy participates in these sorting process. Sometimes this participation occurs in ways that foster inherited advantage (see preceding article), and at other times to contravene these inherited advantages and natural economic processes. Educational contraventions include those policy initiatives that seek to improve the educational performance of those who perform least well in the educational system, e.g. minorities, low income, first generation, etc. These educational initiatives include K-12 finance equalization, free and reduced price school lunch programs, special educational programs, and many, many others.

With respect to higher education, the pre-college initiatives are designed to improve college readiness for under-represented populations. There are many of these programs, certainly thousands of federal, state and community-based programs. The primary goal of these pre-college programs is always academic readiness with assistance into college. Academic readiness follows the high school curriculum guidelines recommended in the report *A Nation at Risk*.

Here we review two rich data resources that describe the academic readiness for college of students. These resources are ACT's data on college core curriculum completion for ACT-tested college-bound high school seniors, and the UCLA Higher Education Research Institute's data on high school courses taken by first-time, full-time college freshmen.

This review notes significant progress in college preparatory course-taking by high school students since *A Nation at Risk* appeared in 1983. This progress has occurred for males and females, in each racial/ethnic group, and at all levels of family income. This progress is long, broad and deep. It is real and critically important to success in college.

But this review also notes that some groups have made more progress in preparing for college than have others. As the consequences of failure to prepare for college grow--as they have for more than 25 years--we must point out that 40 percent of college-bound high school seniors have not completed their college preparatory coursework in high school. This proportion rises to nearly half among some minority groups.

Moreover, some groups have made more progress than have others over the last two decades. And in at least one area--physical science--students are clearly less well prepared today than they were in 1983 when *A Nation at Risk* alerted policy makers to the weakness of the high school curriculum.

A Nation at Risk

In April of 1983 the National Commission on Excellence in Education released its report, *A Nation at Risk: The Imperative for Educational Reform.* The Commission had been created in 1981 by Secretary of Education T. H. Bell to study and report on the quality of American education. Secretary Bell was concerned about the then widespread public perception that something was seriously remiss in the educational system.

The Commission's report remains available online at:

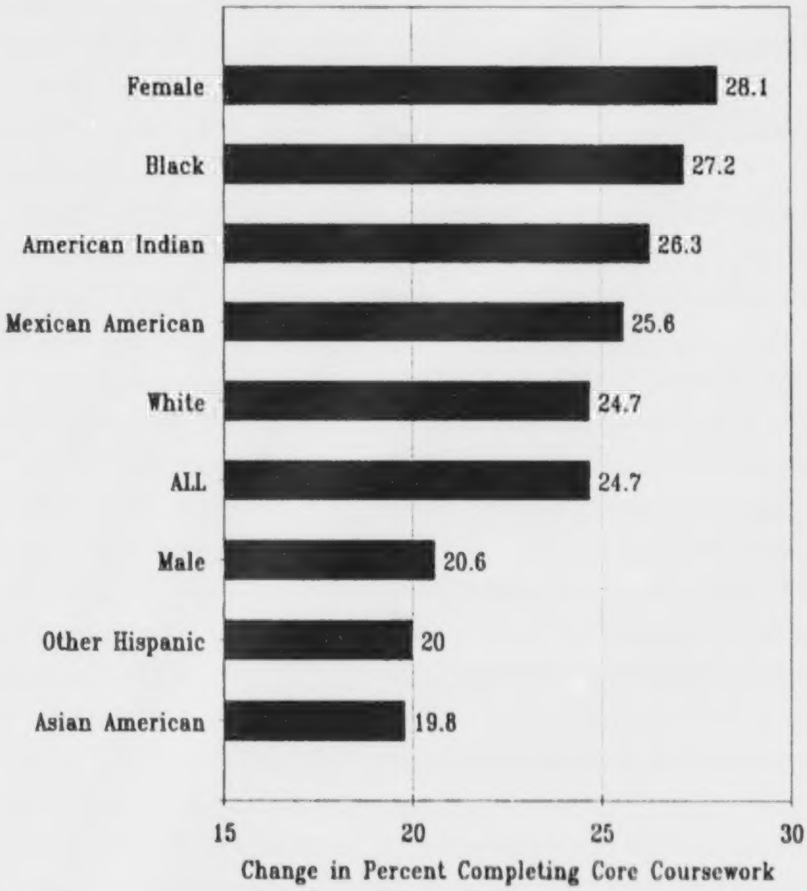
http://www.ed.gov/pubs/NatAtRisk

Today, this report still reads as one of the most eloquent, profound, passionate and desperate pleas on behalf of education that we have ever read. It is worth your time to read or reread this report again now. It addresses core issues about private and social welfare, and education's role in achieving them, that are probably even more vital today than they were in the early 1980s.

The Commission's findings regarding the content of education were that:

> *Secondary school curricula have been homogenized, diluted, and diffused to the point that they no longer have a central purpose. In effect, we have a cafeteria style curriculum in which the appetizers and deserts can easily be mistaken for the main courses. Students have migrated from vocational and college preparatory programs to 'general track' courses in large numbers. The proportion of students taking a general program of study has increased from 12 percent in 1964 to 42 percent in 1979.*

Change in Percent of ACT-Tested High School Seniors That Completed College Preparatory Coursework Between 1987 and 1999

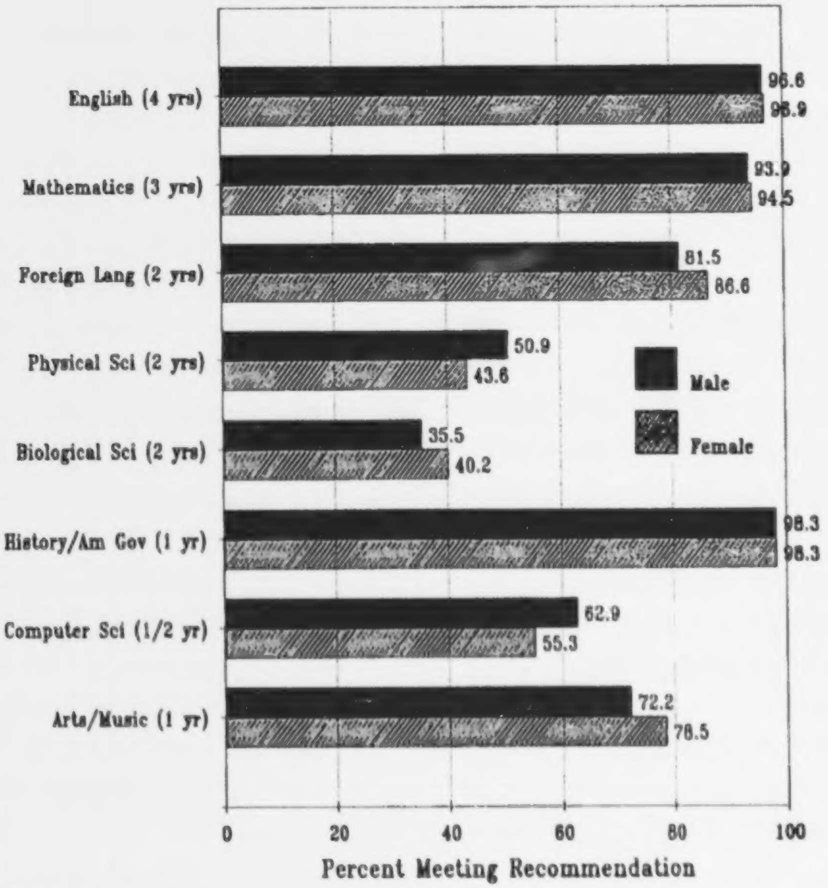


Source: ACT

From this finding, the Commission recommended that:

> *State and local high school graduation requirements be strengthened and that, at a minimum, all students seeking a diploma be required to lay the foundations in the Five New Basics by taking the following curriculum during their 4 years of high school: (a) 4 years of English; (b) 3 years of mathematics; (c) 3 years of science; (d) 3 years of social studies; and (e) one-half year of computer science. For the college-bound, 2 years of foreign language in high school are strongly recommended in addition to those taken earlier.*
>
> *Whatever the student's educational or work objectives, knowledge of the New Basics is the foundation of success for the after-school years and, therefore, forms the core of the modern curriculum. A high level of shared education in*

College Freshmen Meeting or Exceeding
Recommended Years of High School Study by Gender
1998



Source: UCLA Freshman Survey

these Basics, together with work in the fine and performing arts and foreign languages, constitutes the mind and spirit of our culture.

The goals of these curricular recommendations in each subject area were defined by the commission to be:

- **English.** *The teaching of English in high school should equip graduates to: (a) comprehend, interpret, evaluate, and use what they read; (b) write well-organized, effective papers; (c) listen effectively and discuss ideas intelligently; and (d) know our literary heritage and how it enhances imagination and ethical understanding, and how it relates to the customs, ideas, and values of today's life and culture.*
- **Mathematics.** *The teaching of mathematics in high school should equip graduates to: (a) understand geometric and algebraic concepts; (b) understand elementary probability and statistics; (c) apply mathematics in everyday situations; (d) estimate, approximate, measure, and test the accuracy of their calculations.*
- **Science.** *The teaching of science in high school should provide graduates with an introduction to: (a) the concepts, laws, and processes of the physical and biological sciences; (b) the methods of scientific inquiry and reasoning; (c) the application of scientific knowledge to everyday life; and (d) the social and environmental implications of scientific and technological development.*
- **Social studies.** *The teaching of social studies in high school should be designed to: (a) enable students to fix their places and possibilities within the larger social and cultural structure; (b) understand the broad sweep of both ancient and contemporary ideas that have shaped our world; (c) understand the fundamentals of how our economic systems works and how our political system functions; and (d) grasp the difference between free and repressive societies.*
- **Computer science.** *The teaching of computer science in high school should equip graduates to: (a) understand the computer as an information, computation, and communication device; (b) use the computer in the study of the other Basics and for personal and work-related purposes; and (d) understand the world of computers, electronics, and related technologies.*

In addition to these New Basics recommendations, the Commission made recommendations concerning foreign language, fine and applied arts and vocational curricula, the design of the curriculum in grades 1 to 8 to prepare students for the New Basics, and for the support of curriculum development by scientific, industrial and scholarly groups.

Supporting Research

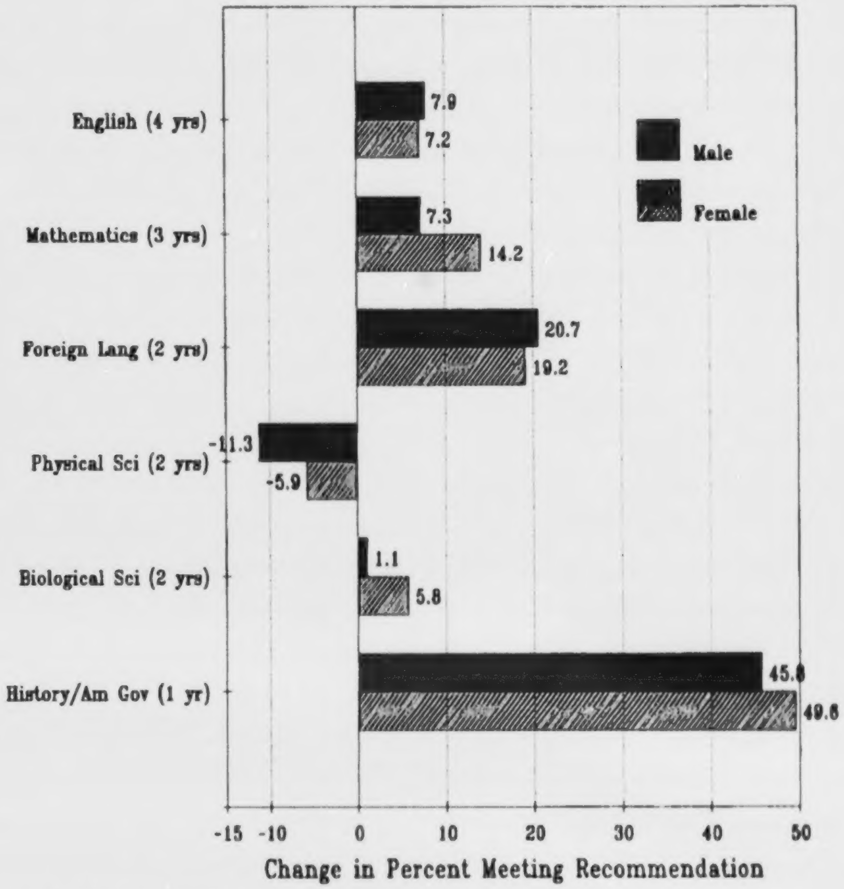
The educational standards movement, that has developed in the aftermath of the release of *A Nation at Risk* in 1983, has become badly sidetracked by over-reliance and misuse of educational testing. Politicians unwilling or unable to address the substantive curricular issues raised in the Commission's report have instead proclaimed educational reform leadership by requiring students to pass tests to become high school graduates. This cheap political theater is now falling apart as parents come to realize that their children may not pass the high school graduation test.

In fact we reported in OPPORTUNITY in September 1999 (#87) that public high school graduation rates had been declining almost steadily since 1983, when *A Nation at Risk* first appeared. Rates had fallen from 73.9 percent in 1983 to 67.5 percent by 1998. This occurred during the 1990s when the nation's governors had declared as a national educational goal the achievement of a 90 percent high school graduation rate by the year 2000. In fact the rate of decline in the public high school graduation rate accelerated during the 1990s.

Alternatively, research on the *substance* of the high school curriculum has consistently supported the Commission's 1983 New Basics curriculum recommendations. Students who take a college preparatory curriculum in high school do better on college admissions tests, and are more successful in college, than are students who do not take a college preparatory curriculum in high school. These findings are consistently more important than gender, race, family income, parental educational attainment or other correlates of educational success through the bachelor's degree.

Most important, however, is the policy meaning of this research. Unlike race, gender, family income or parental educational attainment--which are very difficult to change for individuals--the curriculum available to and taken by students in high school is readily determined by the decisions of policy makers and by students (and/or their parents). Policy makers can *choose* to deliver a challenging, preparatory curriculum to high school students. If available, students can *choose* to take this preparatory curriculum and hence greatly improve their chances for educational success.

Change in College Freshmen Meeting or Exceeding Recommended Years of High School Study by Gender 1983 to 1998



Source UCLA Freshman Survey

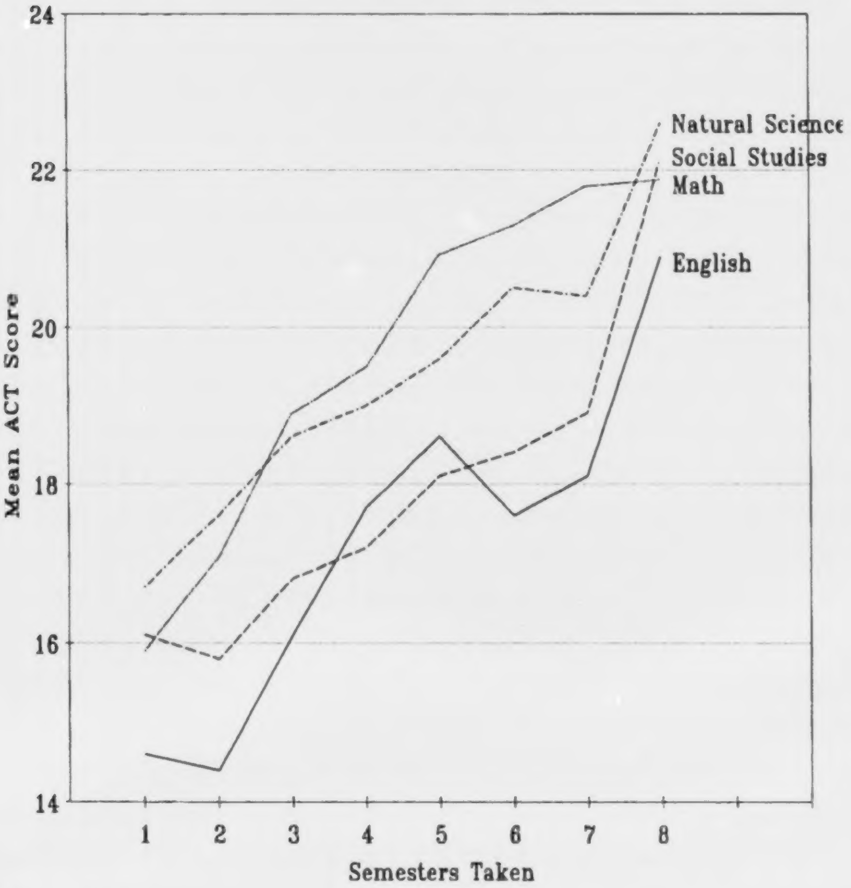
Here we review some of the research on the relationship between the high school curriculum and educational success.

ACT College Core Curriculum

Since 1987 ACT has tabulated and reported data on ACT's College Core high school curriculum taken by college-bound high school seniors who have taken the ACT Assessment. ACT defines its College Core curriculum to be:

- 4 years of English
- 3 years of mathematics
- 3 years of social studies
- 3 years of natural sciences

Average ACT Scores by Number of Semesters of Courses in Relevent Content Area
1999



Source: ACT

Since 1987, when ACT began compiling and reporting these data, the proportion of ACT-tested college-bound high school seniors completing the New Basics curriculum (minus the half-year of computer science), has increased from 39 to 63 percent. This growth has gradually slowed over this period. And in 1999, for the first time, the rate dipped slightly from the previous year. This is a matter of concern, however, because nearly 40 percent of these high school seniors have not completed the curriculum recommended both by the Commission on Excellence in Education in 1983 and by ACT subsequently.

ACT studies demonstrate clearly that there is a strong relationship between the number of courses taken in one of these four subject areas and the score achieved on the relevant ACT sub-test. Our analysis of the 1999 cohort of ACT-tested college-bound high school seniors produced similar findings: more coursework leads to higher ACT subtest score. These data are shown in the above chart.

Additionally, ACT data indicate who is most likely to take the most academic coursework in the New Basics to prepare for college. As shown in the chart on page 10, those most likely to take New Basics coursework in high school are Asians, whites and females. Those least likely to complete college prep coursework are blacks, American Indians, Mexican Americans and males.

When we control for gender and race/ethnicity, the ACT data also show that within all groups students from low income families are less likely to complete a New Basics curriculum in high school than are students from high income families. This relationship has held for all groups across income levels since 1987.

The data reported in the following pages were all prepared by ACT for OPPORTUNITY. They provide a unique reference on the high school curriculum taken by ACT-tested college-bound high school seniors between 1987 and 1999 by gender, race/ethnicity and estimated family income.

Answers in the Tool Box

Several recently reported studies substantiate the original New Basics curriculum recommended in *A Nation at Risk*. Both studies analyzed the relationship between academic preparation for college in high school and subsequent bachelor's degree attainment. Both studies reached the same conclusion: academic preparation for college is the single greatest determinant of college graduation.

Harrington, P.E., and Sum, A. M. "Access ... Is About More Than Money." *Connection*, Fall/Winter 1999. Published by New England Board of Higher Education, Boston.

Adelman, C. (1999). *Answers in the*

TABLE 1
ACT Composite Scores and College Preparatory Core Course Completion for All College-Bound High School Seniors
1987-1999

Estimated Family Income	1999 Mean Composite Score			College Prep Core Course Completers						
	All[1]	Core	LT Cor	1987	1989	1990	1993	1995	1997	1999
0-$5,999	↑	↑	↑	27.4%	34.0%	35.7%	41.2%	45.0%	↑	↑
$6,000-11,999	18.4	19.4	17.2	30.3	38.3	39.9	44.9	49.8	51.0%	53.1%
$12,000-17,999	↓	↓	↓	32.7	40.1	42.2	47.9	52.4	↓	↓
$18,000-23,999	19.2	20.3	17.9	35.1	42.2	44.6	50.0	54.5	54.3	56.1
$24,000-29,999	19.9	20.9	18.5	36.4	44.3	46.2	52.0	56.3	57.1	58.5
$30,000-35,999	20.5	21.4	19.0	38.2	45.8	48.0	53.8	58.0	58.6	59.7
$36,000-41,999	20.8	21.7	19.3	40.1	47.5	49.4	54.7	59.3	60.1	61.0
$42,000-49,999	21.2	22.1	19.7	42.6	50.1	52.2	57.4	61.0	61.8	62.8
$50,000-59,999	21.6	22.5	20.0	44.0	52.1	54.1	59.7	63.2	64.3	65.0
$60,000-79,999	22.1	22.9	20.5	↑	↑	↑	↑	↑	66.9	67.6
$80,000-99,999	22.7	23.4	21.1	47.2	55.8	58.4	64.7	68.2	70.2	70.2
$100,000 & +	23.4	24.0	21.9	↓	↓	↓	↓	↓	72.5	72.9
TOTAL	21.0	22.0	19.4	37.9%	46.1%	48.4%	54.8%	59.4%	61.0%	62.6%
Number:										
1999	1,019,053	615,545	367,537							
1997	959,301	566,141	361,947							
1995	945,369	529,146	360,925							
1993	875,603	453,064	374,256							
1990	817,096	370,379	394,540							
1989	855,309	380,576	445,236							
1987	777,508	283,562	464,760							

[1] Includes those for whom core course work could not be determined.

Toolbox: Academic Intensity, Attendance Patterns, and Bachelor's Degree Attainment. U.S. Department of Education, Office of Educational Research and Improvement.

Both studies rely on the large longitudinal studies prepared by the National Center for Education Statistics over the last three decades. While both of these studies are good reads, the Adelman study provides more analytic detail and hence is referenced in more detail here.

The *Toolbox* study begins with a simple question:

> *What contributes most to bachelor's degree completion of students who attend 4-year colleges at any time in their undergraduate careers?*

The answer to this question is found through regression analysis of pre-college and in-college measures. With respect to graduation probability, the study found that the most important influences were:

- "Academic resources" which is a composite measure of the academic content and performance that the student brings from secondary education into higher education.
- Continuous enrollment once a true start has begun in higher education.

The study identifies and measures the components of "academic resources" that students bring with them from secondary education as: *high school curriculum* accounts for 41 percent of the resources, *test scores* account for another 30 percent, and *class rank/academic GPA* account for 29 percent. "No matter how one divides the universe of students, the curriculum measure produces a higher percent earning bachelor's degrees than either of the other measures."

The importance of a high academic intensity and quality high school

TABLE 2
ACT Composite Scores and College Preparatory Core Course Completion for Male College-Bound High School Seniors
1987-1999

Estimated Family Income	1999 ACT Mean Composite Score			College Prep Core Course Completers					
	All[1]	Core	LT Core	1987	1990	1993	1995	1997	1999
0-$5,999	↑	↑	↑	30.5%	38.4%	41.7%	45.6%	↑	↑
$6,000-11,999	18.5	19.6	17.2	33.3	41.6	45.0	49.6	50.3%	51.9%
$12,000-17,999	↓	↓	↓	35.6	44.3	48.7	51.8	↓	↓
$18,000-23,999	19.3	20.5	17.9	38.3	46.6	50.4	54.2	53.9	54.7
$24,000-29,999	20.0	21.1	18.4	39.6	48.4	52.9	56.1	56.5	57.3
$30,000-35,999	20.6	21.7	19.0	41.5	50.2	54.7	58.0	57.9	58.6
$36,000-41,999	20.8	21.9	19.2	43.1	51.9	55.6	59.1	59.2	59.9
$42,000-49,999	21.2	22.3	19.5	46.0	54.1	58.2	60.9	61.4	61.4
$50,000-59,999	21.7	22.6	19.9	47.8	55.9	60.4	63.1	63.7	64.1
$60,000-80,999	22.2	23.0	20.4	↑	↑	↑	↑	66.8	66.5
$80,000-99,999	22.7	23.5	20.9	50.0	60.1	65.3	67.9	70.0	69.0
$100,000 & +	23.4	24.1	21.8	↓	↓	↓	↓	72.0	72.2
TOTAL	21.1	22.3	19.4	41.3%	50.9%	55.9%	59.6%	60.8%	61.9%
Number:									
1999	437,293	258,893	159,389						
1997	419,049	244,304	157,337						
1995	416,159	231,182	156,397						
1993	393,707	205,844	162,625						
1990	373,310	175,840	169,671						
1987	356,695	140,352	199,505						

[1] Includes those for whom core coursework could not be determined.

TABLE 3
ACT Composite Scores and College Preparatory Core Course Completion for Female College-Bound High School Seniors
1987-1999

Estimated Family Income	1999 ACT Mean Composite Score			College Prep Core Course Completers					
	All[1]	Core	LT Core	1987	1990	1993	1995	1997	1999
0-$5,999	↑	↑	↑	25.7%	34.0%	40.8%	44.7%	↑	↑
$6,000-11,999	18.3	19.2	17.3	28.4	38.8	44.9	49.9	51.4%	53.8%
$12,000-17,999	↓	↓	↓	30.7	40.6	47.3	52.7	↓	↓
$18,000-23,999	19.2	20.1	18.0	32.5	42.9	49.6	54.7	54.5	57.1
$24,000-29,999	19.8	20.7	18.5	33.6	44.3	51.2	56.4	57.5	59.4
$30,000-35,999	20.4	21.3	19.0	35.4	46.1	53.0	58.0	59.1	60.5
$36,000-41,999	20.8	21.6	19.4	37.3	47.2	54.0	59.5	60.8	62.0
$42,000-49,999	21.2	22.0	19.8	39.4	50.4	56.6	61.1	62.1	64.0
$50,000-59,999	21.6	22.3	20.1	42.0	52.5	59.0	63.3	64.8	65.7
$60,000-79,999	22.1	22.8	20.7	↑	↑	↑	↑	67.1	68.6
$80,000-99,999	22.7	23.3	21.3	44.5	56.6	64.1	68.4	70.3	71.4
$100,000 & +	23.5	23.9	22.1	↓	↓	↓	↓	73.1	73.7
TOTAL	21.0	21.9	19.4	35.1%	46.4%	53.9%	59.3%	61.1%	63.2%
Number:									
1999	577,828	354,752	206,530						
1997	540,252	321,837	204,610						
1995	529,210	297,964	204,528						
1993	481,896	247,220	211,631						
1990	443,786	194,539	224,869						
1987	420,729	143,205	265,235						

[1] Includes those for whom core coursework could not be determined.

TABLE 4
ACT Composite Scores and College Preparatory Core Course Completion for African American/Black College-Bound High School Seniors
1987-1999

Estimated Family Income	1999 ACT Mean Composite Score			College Prep Core Course Completers					
	All[1]	Core	LT Core	1987	1990	1993	1995	1997	1999
0-$5,999	↑	↑	↑	25.4%	35.3%	41.1%	45.1%	↑	↑
$6,000-11,999	16.1	16.8	15.3	28.5	39.6	44.7	50.7	50.7%	52.9%
$12,000-17,999	↓	↓	↓	30.2	41.4	47.7	53.0	↓	↓
$18,000-23,999	16.5	17.2	15.6	31.8	42.2	49.1	55.5	56.4	56.1
$24,000-29,999	16.9	17.6	15.8	32.8	44.7	50.3	55.6	56.4	59.7
$30,000-35,999	17.3	18.0	16.2	34.2	46.7	53.1	57.0	58.0	60.2
$36,000-41,999	17.5	18.2	16.4	34.9	48.2	53.2	59.9	59.0	61.3
$42,000-49,999	17.9	18.5	16.8	39.0	49.4	56.1	61.2	60.7	62.6
$50,000-59,999	18.2	19.0	16.9	38.8	51.4	57.6	62.4	62.6	64.7
$60,000-79,999	18.8	19.5	17.4	↑	↑	↑	↑	63.3	66.6
$80,000-99,999	19.3	20.1	17.7	43.3	52.7	60.4	64.6	66.2	69.1
$100,000 & +	20.0	20.8	18.3	↓	↓	↓	↓	67.0	68.4
TOTAL	17.1	17.9	16.0	30.9%	42.6%	48.9%	54.5%	55.8%	58.1%
Number:									
1999	103,932	58,410	42,061						
1997	90,617	50,100	39,696						
1995	89,155	48,097	40,099						
1993	80,401	38,893	40,620						
1990	71,197	29,814	40,127						
1987	61,772	18,789	42,109						

[1] Includes those for whom core coursework could not be determined.

TABLE 5
ACT Composite Scores and College Preparatory Core Course Completion for American Indian/Alaskan Native College-Bound High School Seniors
1987-1999

Estimated Family Income	1999 ACT Mean Composite Score			College Prep Core Course Completers					
	All[1]	Core	LT Core	1987	1990	1993	1995	1997	1999
0-$5,999	↑	↑	↑	16.8%	26.2%	31.9%	36.0%	↑	↑
$6,000-11,999	17.4	18.6	16.6	20.2	29.7	37.0	38.7	41.8%	43.6%
$12,000-17,999	↓	↓	↓	36.0	35.8	43.7	42.7	↓	↓
$18,000-23,999	18.1	19.5	17.0	27.4	40.5	44.7	46.7	49.1	50.6
$24,000-29,999	18.5	19.7	17.3	28.7	39.5	47.1	51.6	49.4	50.8
$30,000-35,999	19.1	20.6	17.7	28.2	39.4	50.0	53.0	52.2	51.3
$36,000-41,999	19.4	20.5	18.1	32.2	41.2	49.5	54.9	55.2	56.2
$42,000-49,999	19.6	21.0	18.1	36.8	46.4	50.7	54.4	55.2	56.9
$50,000-59,999	20.1	21.2	18.7	32.4	46.5	55.5	58.3	58.5	58.6
$60,000-79,999	20.7	21.8	19.1	↑	↑	↑	↑	57.7	60.7
$80,000-99,999	21.4	22.2	19.9	36.7	49.5	58.0	61.3	55.7	66.9
$100,000 & +	21.7	22.8	19.6	↓	↓	↓	↓	65.6	67.5
TOTAL	18.9	20.4	17.6	26.4%	37.8%	45.7%	49.5	51.2%	52.7%
Number:									
1999	10,830	5,332	4,782						
1997	11,509	5,685	5,414						
1995	11,361	5,398	5,509						
1993	10,384	4,537	5,390						
1990	9,101	3,163	5,208						
1987	7,359	1,769	4,943						

[1] Includes those for whom core coursework could not be determined.

TABLE 6
ACT Composite Scores and College Preparatory Core Course Completion for White College-Bound High School Seniors
1987-1999

Estimated Family Income	1999 ACT Mean Composite Score			College Prep Core Course Completers					
	All[1]	Core	LT Core	1987	1990	1993	1995	1997	1999
0-$5,999	↑	↑	↑	28.8%	35.1%	40.3%	44.1%	↑	↑
$6,000-11,999	20.1	21.4	18.7	30.8	39.2	43.7	48.5	50.0%	51.9%
$12,000-17,999	↓	↓	↓	33.0	41.8	47.2	51.4	↓	↓
$18,000-23,999	20.5	21.6	19.0	33.5	44.6	49.6	53.9	53.8	55.7
$24,000-29,999	20.8	21.9	19.3	36.7	46.0	51.6	55.8	56.8	58.1
$30,000-35,999	21.1	22.1	19.5	38.4	47.8	53.4	57.6	58.2	59.5
$36,000-41,999	21.2	22.2	19.7	40.2	49.3	54.5	58.9	59.9	60.8
$42,000-49,999	21.5	22.4	20.0	42.7	52.2	57.1	60.8	61.6	62.8
$50,000-59,999	21.8	22.7	20.2	44.9	54.1	59.5	62.9	64.2	64.9
$60,000-79,999	22.3	23.1	20.7	↑	↑	↑	↑	67.0	67.5
$80,000-99,999	22.8	23.5	21.2	47.2	58.3	64.6	68.1	70.2	70.3
$100,000 & +	23.5	24.0	22.0	↓	↓	↓	↓	72.7	73.1
TOTAL	21.7	22.7	20.1	38.8%	49.1%	55.5%	60.2%	62.0%	63.5%
Number:									
1999	732,025	452,100	260,036						
1997	663,878	408,851	250,763						
1995	650,664	388,508	257,159						
1993	625,242	342,884	275,294						
1990	605,361	290,929	301,253						
1987	610,780	234,118	369,995						

[1] Includes those for whom core course work could not be determined.

TABLE 7
ACT Composite Scores and College Preparatory Core Course Completion for Asian-American/Pacific Islander College-Bound High School Seniors
1987-1999

Estimated Family Income	1999 ACT Mean Composite Score			College Prep Core Course Completers					
	All[1]	Core	LT Core	1987	1990	1993	1995	1997	1999
0-$5,999	↑	↑	↑	41.6%	54.1%	56.1%	57.6%	↑	↑
$6,000-11,999	18.8	19.5	17.4	46.1	59.4	62.6	63.4	65.3%	66.4%
$12,000-17,999	↓	↓	↓	49.2	60.9	64.0	65.8	↓	↓
$18,000-23,999	19.7	20.5	18.0	50.8	61.9	65.3	67.2	66.5	68.6
$24,000-29,999	20.3	21.0	18.9	51.0	63.4	68.0	71.0	71.2	70.3
$30,000-35,999	21.2	21.8	19.7	55.4	62.8	68.7	71.8	71.8	72.0
$36,000-41,999	21.5	22.0	20.0	56.5	65.1	72.2	71.3	73.2	73.1
$42,000-49,999	22.1	22.7	20.3	55.7	66.7	71.1	71.0	72.1	75.2
$50,000-59,999	22.6	23.1	21.1	58.5	66.5	72.4	75.3	76.0	75.4
$60,000-79,999	23.4	23.8	21.9	↑	↑	↑	↑	76.6	76.9
$80,000-99,999	24.3	24.7	22.8	59.9	70.5	74.0	78.1	78.5	77.6
$100,000 & +	25.3	25.6	24.3	↓	↓	↓	↓	78.7	78.9
TOTAL	21.7	22.3	19.9	52.4%	63.6%	68.5%	70.7%	72.1%	72.2%
Number:									
1999	33,251	23,017	8,856						
1997	28,542	20,201	7,834						
1995	27,784	19,237	7,989						
1993	24,754	16,600	7,649						
1990	19,081	11,734	6,714						
1987	13,885	7,070	6,411						

[1] Includes those for whom core coursework could not be determined.

TABLE 8
ACT Composite Scores and College Preparatory Core Course Completion for Mexican-American/Chicano College-Bound High School Seniors
1987-1999

Estimated Family Income	1999 ACT Mean Composite Score			College Prep Core Course Completers					
	All[1]	Core	LT Core	1987	1990	1993	1995	1997	1999
0-$5,999	↑	↑	↑	22.8%	35.6%	38.9%	44.8%	↑	↑
$6,000-11,999	17.2	18.1	16.1	28.6	40.0	46.8	51.5	51.1%	53.6%
$12,000-17,999	↓	↓	↓	31.2	42.3	48.0	52.6	↓	↓
$18,000-23,999	17.7	18.6	16.7	31.0	43.2	50.7	53.2	50.9	54.5
$24,000-29,999	18.3	19.1	17.2	32.6	45.4	49.2	55.6	54.7	55.7
$30,000-35,999	18.7	19.5	17.7	35.2	49.1	52.0	58.7	56.8	55.8
$36,000-41,999	19.1	19.8	18.0	38.0	47.8	52.1	57.3	57.8	58.5
$42,000-49,999	19.5	20.4	18.1	41.0	50.9	56.7	58.3	59.1	61.8
$50,000-59,999	20.2	20.9	18.9	39.8	50.6	57.1	62.2	60.3	62.7
$60,000-79,999	20.6	21.4	18.9	↑	↑	↑	↑	65.2	66.8
$80,000-99,999	21.3	21.9	20.0	42.3	55.2	62.4	66.1	68.1	66.7
$100,000 & +	21.8	22.5	20.2	↓	↓	↓	↓	66.9	68.4
TOTAL	18.6	19.6	17.4	31.8%	44.2%	50.0%	55.4%	55.6%	57.4%
Number:									
1999	38,257	21,260	15,753						
1997	21,511	11,875	9475						
1995	24,431	13,435	10,801						
1993	27,713	13,764	13,753						
1990	22,806	9,770	12,349						
1987	17,451	5,407	11,614						

[1] Includes those for whom core coursework could not be determined.

TABLE 9
ACT Composite Scores and College Preparatory Core Course Completion for Puerto Rican, Cuban, Other Hispanic College-Bound High School Seniors
1987-1999

Estimated Family Income	1999 ACT Mean Composite Score			College Prep Core Course Completers					
	All[1]	Core	LT Core	1987	1990	1993	1995	1995	1999
0-$5,999	↑	↑	↑	28.6%	35.8%	38.9%	42.9%	↑	↑
$6,000-11,999	17.6	18.7	16.4	37.9	44.1	48.7	49.9	52.5%	56.0%
$12,000-17,999	↓	↓	↓	39.9	49.3	52.6	53.6	↓	↓
$18,000-23,999	18.4	19.4	16.8	42.2	50.5	53.8	56.0	54.5	61.0
$24,000-29,999	18.8	19.7	17.4	45.7	51.3	58.2	57.6	60.0	62.3
$30,000-35,999	19.3	20.2	17.8	50.6	56.3	60.6	61.0	60.9	63.5
$36,000-41,999	19.8	20.6	18.6	51.1	57.6	60.1	62.0	61.3	64.7
$42,000-49,999	20.1	20.9	18.7	50.4	56.1	65.4	63.2	64.2	64.8
$50,000-59,999	20.9	21.7	19.1	56.4	60.8	66.0	66.1	64.7	70.6
$60,000-79,999	21.4	22.0	19.9	↑	↑	↑	↑	66.6	71.0
$80,000-99,999	22.1	22.8	20.2	56.5	64.4	70.1	71.5	72.1	72.4
$100,000 & +	23.0	23.5	21.2	↓	↓	↓	↓	73.9	80.1
TOTAL	19.6	20.7	17.9	44.0%	51.8%	57.0%	58.1%	59.7%	64.0%
Number:									
1999	15,073	8,911	5,002						
1997	26,841	15,693	10,615						
1995	24,054	13,585	9,812						
1993	13,894	7,693	5,799						
1990	10,669	5,250	4,886						
1987	7,566	3,149	4,003						

[1] Includes those for whom core coursework could not be determined.

curriculum is measured by constructing a composite measure of academic intensity. The composite consists of high school coursework based on the New Basics curriculum recommended in *A Nation at Risk*. The gradation of measured academic intensity gave added weight to the most rigorous New Basics courses taken by the student (especially math), and deducted for the number of remedial courses taken in each core curriculum area. The most rigorous college preparation curriculum was:

- 3.75 or more Carnegie units of math, with no remedial math
- highest math level was trigonometry or higher
- 3.75 or more units of English, with no remedial courses
- 2 or more units of core laboratory science or 2.5 units of all science
- 2 units of foreign language
- 2 units of history, or 1 unit of history and 1 unit of either civics or social studies
- more than 1 Adv Placement course

The impact of the high school curriculum of high academic intensity and quality on bachelor's degree attainment was found to be most important for blacks and Hispanics students, more so than for white students.

A Comment on Educational Reform

The 1983 report *A Nation at Risk* focused attention on deficiencies in the high school curriculum, and made recommendations about how to restructure it for all students. In many respects, this was the origin of the educational reform movement of K-12 education that persists today.

Significantly, that reform movement began with criticism of the high school curriculum. Along the way the K-12 reform movement has displaced curricular reform with high stakes testing, and the results have been a catastrophe. High school graduation rates have been dropping since 1983. And the current wave of state testing to graduate from high school is in retreat in most states.

Beefing up the high school curriculum--the *substance* of education--was viewed as too costly. No state adopted the New Basics for all high school graduation. Instead, the cheaper political theater of high stakes testing was substituted. Politicians could claim they were reforming education by imposing graduation tests, rather than investing in the substance of education. This failure should take us back to where this started: *educating* students for college, not just testing them.

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Information Technology and Higher Educational Opportunity

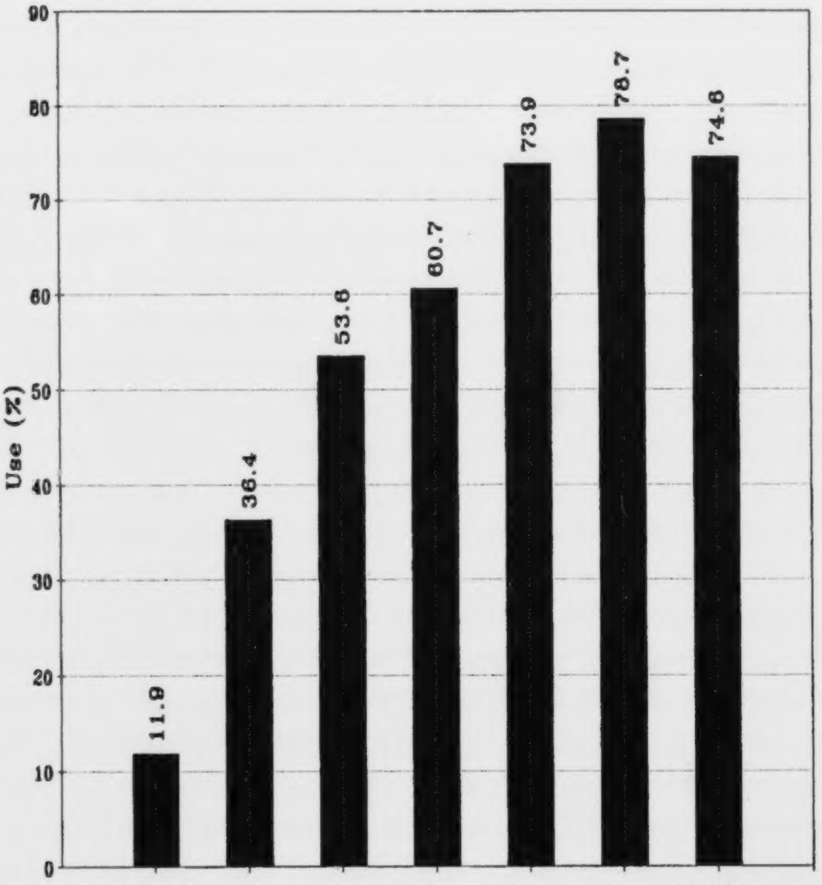
This issue of OPPORTUNITY is devoted to a broad examination of information technology: its economic importance and its importance to postsecondary educational opportunity. Over the last two decades, computers and the Internet have become increasingly intertwined with economic growth and development, job skills and education.

In one sense computers are nothing more than boat anchors or landfill. But in the hands of persons trained to use information technology, computers and the Internet can greatly enhance worker productivity. Those gains in productivity fuel economic growth, enhance economic competitiveness in a global economy, lead to real gains in earnings from employment and ultimately enhance human welfare and living standards.

There are downsides to information technology as well. Workers are displaced by machines, manufacturing jobs leave the U.S. for lower wage scale labor markets, and the great economic and racial divides that plague a fair distribution of human welfare in the U.S. are made worse. Some people adapt to change more readily than do others.

Education and training feed the transition to and growth of the information economy. Those who acquire the new skills through education and training can engage in the new opportunities created by this transition and thereby prosper.

Use of Computers at Work by Educational Attainment
1997



Source: Census Bureau

But unfortunately, the great social and economic divides of income, educational attainment, age, race/ethnicity and urban/rural are nearly all made worse during this economic transformation.

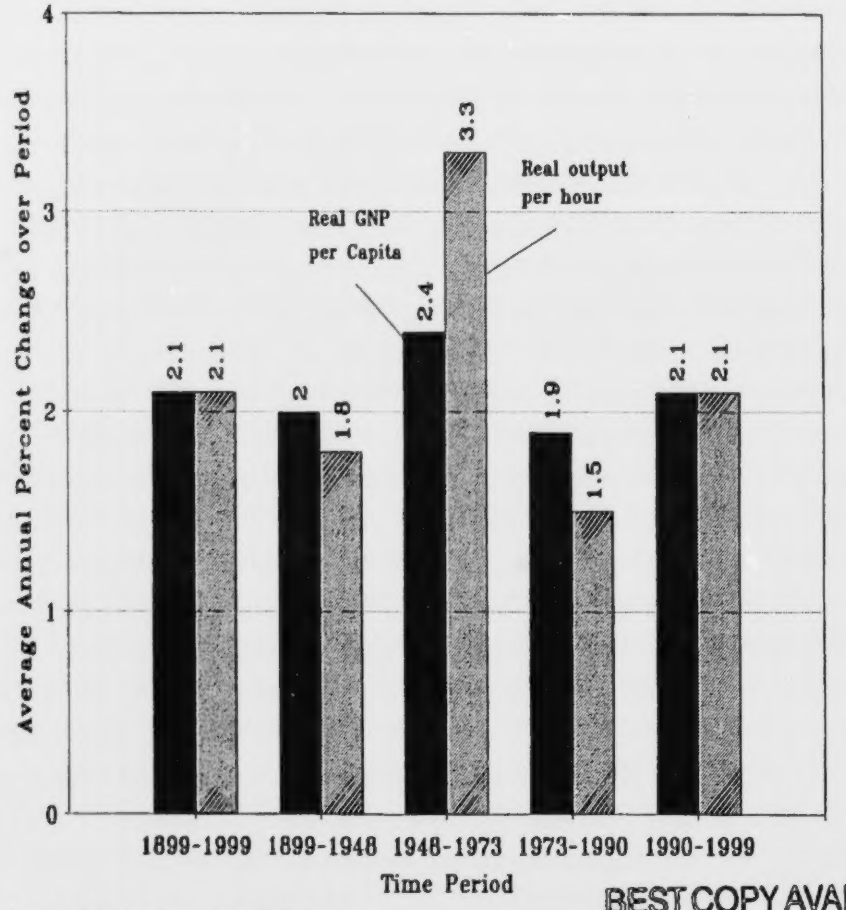
The Economy

The economy of the United States is measured by Gross Domestic Product, or GDP. This is the total value of goods and services produced in the United States in a given year. In 1999 the GDP of the United States totaled $9,254,600,000,000 (nearly $9.3 trillion).

About two-thirds of the GDP (67.6 percent in 1999) is expenditures for personal consumption. This includes durable goods (cars, furniture, etc.), non-durable goods (food, clothing, gasoline, etc.) and services (housing, electricity and gas, transportation, medical care, recreation, etc.). Personal consumption broadly measures how well we live, or our national living standards.

Growth in the economy (faster than population and inflation) produces increased living standards overall. Between 1899 and 1999 the average annual growth in real income per capita was 2.1 percent per year, or enough to double living standards every 35 years, and quadruple living standards over a lifetime. Also during

Growth in Income per Capita
and Business Sector Output per Hour
1899-1999



Source: Economic Report of the President

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Mission Statement

This research letter is founded on two fundamental beliefs. First, sound public social policy requires accurate, current, independent, and focused information on the human condition. Second, education is essential to the development of human potential and resources for both private and public benefit. Therefore, the purpose of this research letter is to inform those who formulate, fund, and administer public policy and programs about the condition of and influences that affect postsecondary education opportunity for all Americans.

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this century real business sector output per year grew 2.1 percent, which produced this growth in living standards.

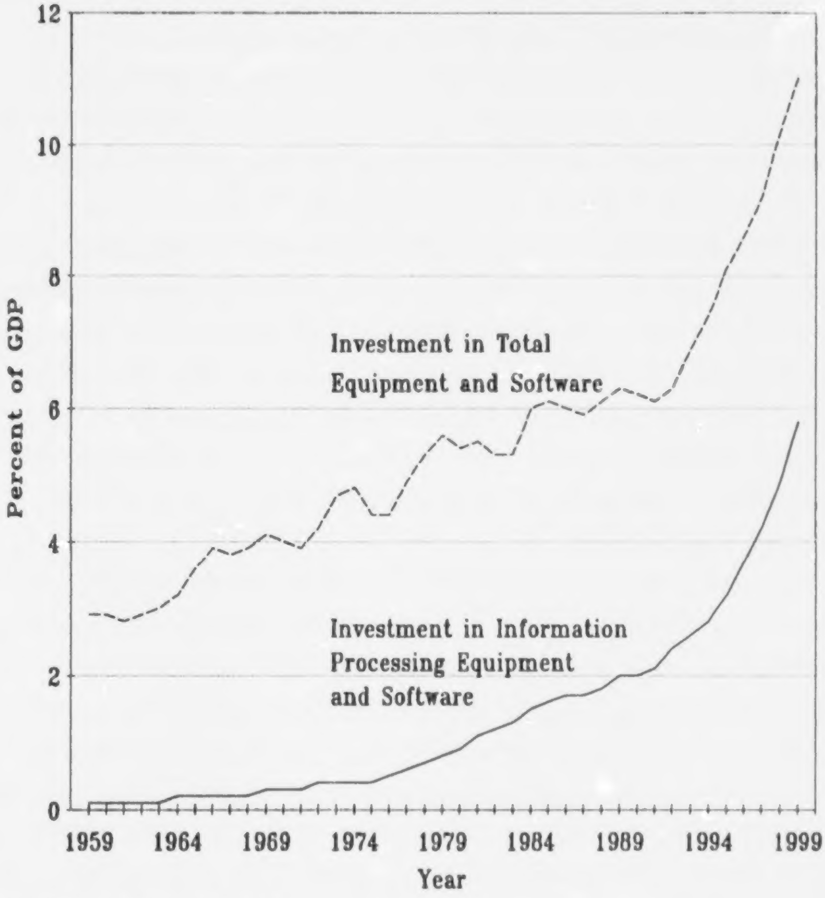
However, this growth has not always been uniform. Between 1948 and 1973, real GNP per capita increased at an annual average rate of 2.4 percent, while real output per hour increased by 3.3 percent. This was an era of broadly experienced real growth in incomes and the living standards supported by those incomes, as frequently reported in past issues of OPPORTUNITY. Then, between 1973 and 1990 real GNP per capita increased by an average of 1.9 percent per year, while real hourly output increased by 1.5 percent. This was an era where aggregate incomes did not increase (although substantial income redistribution occurred across different levels of educational attainment).

Most recently, between 1990 and 1999, both real GNP per capita and real output per hour have returned to the 2.1 average annual growth rate. This matches the relatively high average rates of the 1899 to 1999 century as a whole.

The key to real gains in aggregate measures of income is labor force productivity. In 1999 the economy produced almost 30 times the volume of goods and services that it produced a century earlier. But the labor force only grew by five times. So each worker produced about six times as much in 1999 as he or she did one hundred years earlier. This growth in labor productivity increased real incomes from about $4200 in 1899 to $33,740 by 1999.

The most recent data on labor productivity is even more interesting. Between 1995 and 1999 labor productivity increased at an even faster rate, 2.9 percent per year. While this rate has not yet been observed through a business cycle, it is quite striking because in recent long economic expansions worker productivity tends to decline in the later stated of the cycle. In this case it appears to be increasing, suggesting that this economic expansion has a firmer foundation for further growth in future years than did previous later growth stages of the business cycle.

Real Private Investment in Equipment as a Share of Real Gross Domestic Product 1959 to 1999



Source: Bureau of Economic Analysis

The New Economy

Since mid 1998, the stock markets of the United States have been brutally and relentlessly reflecting changing economic activity in the United States. Companies are being classified into "new" and "old" economies according to investor expectations about their prospects for economic growth. The new companies are "high tech" as investors reallocate their investments from older manufacturing and service industries into newer technology-driven companies that offer the promise of greater future economic returns on investment.

There are several technologies driving economic growth besides information technology. These include materials science, biotechnology and medical

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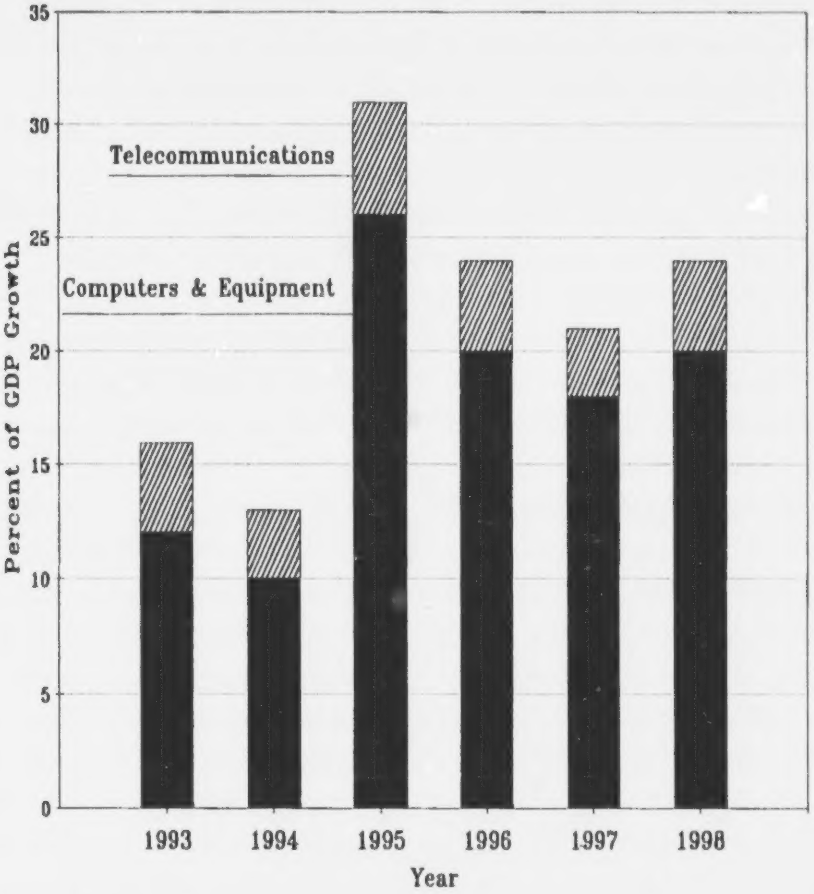
Contribution of Computers and Telecommunications Purchases to Growth of Gross Domestic Product 1993 to 1998



Source: U.S. Department of Commerce

technology. All are driving economic growth today. Here, however, we focus on information technology and its contribution to economic growth.

Measured by stock market capitalization, in 1989 the information technology hardware companies were 6 percent. By 1999 they accounted for 14 percent of market capitalization. According to another study, venture capitalists raised $25 billion at an annual rate in the first half of 1999. About two thirds of the venture capital raised was invested in the information technology sector, and of that total about three-quarters went into Internet companies.

These information technology-producing industries include technologies that process, store and communicate information. They contributed an average of 35 percent of the real economic growth in the United States between 1995 and 1998. These industries are adding employees at a considerably higher rate than the economy as a whole (more than double the overall rate in 1997). Moreover, these new jobs pay extraordinarily well. While jobs in the overall economy pay an average of $30,000 per year, in information technology-producing industries they pay an average of $53,000 per year.

The telecommunications industry provides a critical part of the infrastructure for information technology. The recent transformation of the telecommunications industry began with the 1982 breakup of AT&T into long-distance and local components. This was the beginning of competition in long-distance telephone service, with price reductions ultimately delivered to consumers. This competition was furthered by the 1996 Telecommunications Act that fosters local telephone service competition.

This telecommunications infrastructure has evolved into a backbone for the industries employing information technology. Between 1993 and 1997 the number of households adding a second phone line grew from 8.8 to 17.9 million. This creates rich new opportunities for businesses positioned or created to participate in the new e-economy.

Labor Force Productivity

A fundamental component of economic growth is labor force productivity. When workers produce more for their employers, their employers can afford to pay them higher wages for their labors. With the higher wages come the higher living standards to which we all aspire.

The relationship between information technology and labor force productivity has been unclear, at best, in the past. More recently, however, the relationship appears to be clarifying: information technology appears to be contributing directly to productivity. The delay in understanding this relationship appears to be partly caused by the rate of adoption of the new technology by workers and businesses, and also by the implementation to achieve a critical mass of knowledgeable users before they could begin exploiting the potential of information technology.

During the last century, labor force productivity grew at an average annual rate of 2.1 percent per year. The most recent data for 1995 to 1999 show a 2.9 percent per year average annual growth rate. Now it appears that businesses are quickly learning how to use information technology to produce goods and services more efficiently. The development of information technology can improve information flows within and between companies that improve decision-making. Information flows can foster new product or service developments.

Unlike previous economic expansions, the current one has seen an atypical *increase* ,in productivity as the expansion phase of the business cycle ages. The typical pattern in the two most recent long expansions was for productivity to decline with age. In this expansion productivity has increased after an initial sluggish start to the recovery. Workers continue to produce more per hour worked. This increased production appears to be the result of better skilled workers, capital investments in computers and other equipment, moderate inflation and competitive pressures. This improvement in productivity augers well for continued economic growth.

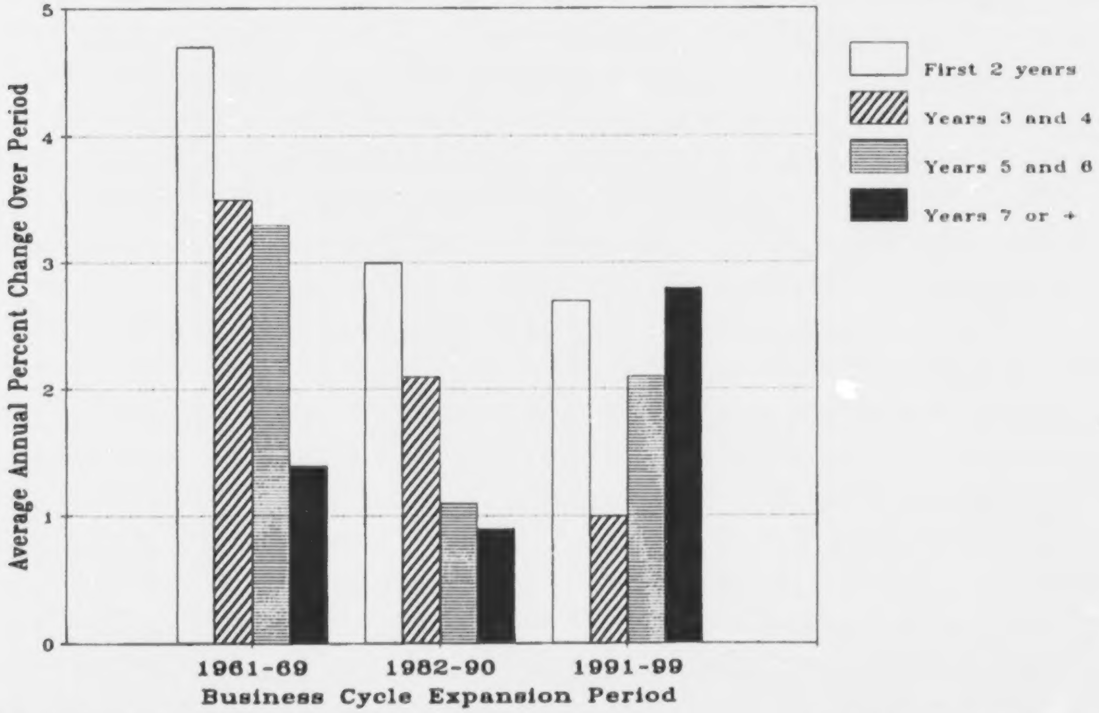
Conclusion

The American economy is strong and growing: jobs are being created, wages are rising, unemployment is low, poverty rates are declining. In aggregates the 1990s have been a period of remarkable growth. The distribution of the benefits of this growth have been widespread. The decade ends with prospects for continued growth into the future.

Clearly, the strength of this economic expansion has been driven by technological innovation, and in particular by the development of information technology. These innovations promise to alter the way we do our business, and strengthen American leadership in a highly competitive global economy.

The implications for education could not be clearer: what we are educating students to do in their adult roles is changing very rapidly. As information technology continues to drive economic growth and development, preparing college students for important leadership roles in this new world must include mastery of the skills and utilization of the extensive resources of the digital world.

Growth in Nonfarm Business Sector Output per Hour During Expansion of the Business Cycle



Source: Bureau of Labor Statistics

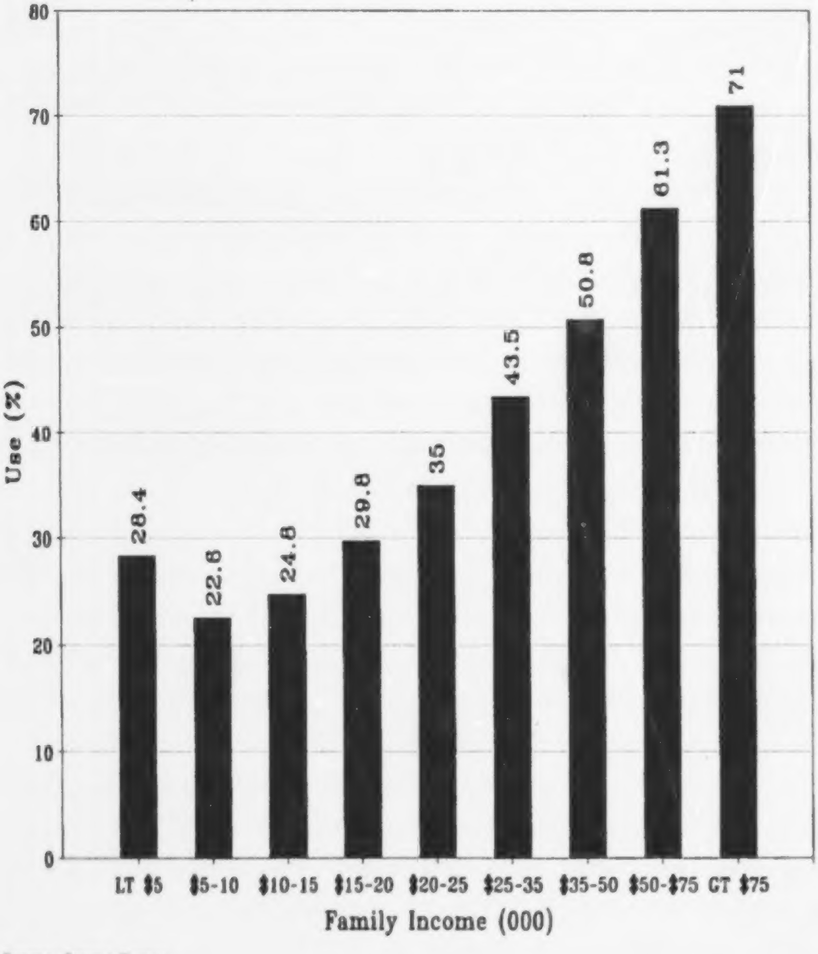
Information Technology in the World of Work

Increasingly, computers are a tool of the worker. In 1997 the Census Bureau found that 49.8 percent of workers 18 and over used a computer on the job. This was up from 45.8 percent in 1993.

But more important than the fact that half of all who work are using computers is who is using them, and how they are used. Computer usage rates approach 80 percent among those with the highest incomes, the most education, and among managers and professionals.

There are clear gender differences among computer users, both in their rate of use and in the purposes for which computers are used. There are age differences, differences between regions of the U.S., and large differences across racial/ethnic groups.

Use of Computers at Work by Family Income
1997



Source: Census Bureau

In this section we examine the uses of information technology in the world of work. The most important finding from this analysis is that the better paid jobs are the ones in which computer use is most frequent.

Occupation

Some occupations appear to be heavily dependent on information technology generally and computers in particular, while few workers in other occupations use them. Significantly, the occupations with the highest usage rates also have the highest compensation rates. The occupations with the lowest rates have the lowest compensation rates. This finding applies to both males and females. This finding also helps explain other large observed differences in computer usage, such as across levels of educational attainment and across racial/ethnic groupings of the population. The nature of the work we do requires more or less association with information technology.

Males. According to the Census Bureau, in 1997 44 percent of all working males age 18 and over used a computer at work. By occupation these rates ranged from 8 percent among those working in farming/forestry/fisheries to 75 percent among males working as managers or professionals.

Males most reliant on computers at work, besides managers and professionals were those working in technical, sales and administrative support roles. Less than a quarter of all other employed males used computers at work.

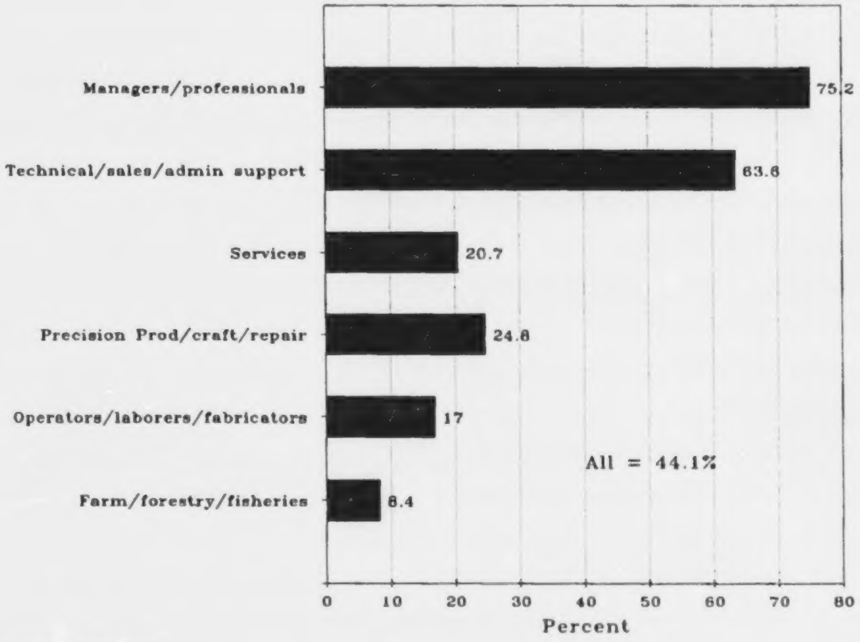
According to the Bureau of Labor Statistics, median weekly earnings for all males in 1998 was $598. By occupation, median weekly earnings were highest for managers and professionals at $905 (where computer usage rates were highest). Earnings were lowest for males working in farming, forestry and fisheries at $307 (where computer usage rates were lowest). Across these six occupational categories, the correlation between computer usage rates and median weekly earnings was +.89.

Females. Similar patterns and relationships hold for working women. However, women are considerably more likely than men to use a computer on the job. In 1997 56.5 percent of women used a computer at work, compared to 44.1 percent for men.

By occupation computer usage rates for women ranged from ranged from 74 percent of managers and professionals to 13.3 percent of those who were in farming, forestry and fisheries. Like men, women were most reliant on computers as managers/professionals and as technical/sales/administrative support. The computer usage rate for women exceeded the male rate in all occupational categories except managers/professionals and services.

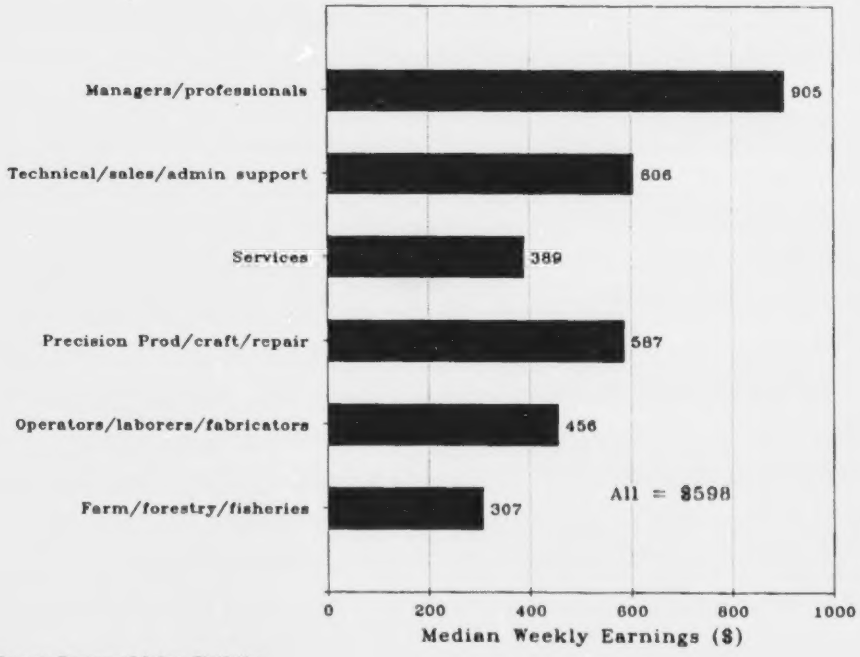
Again as with males, computer usage rates were strongly related to median weekly earnings for women. Computer usage was highest among managers/professionals at 74 percent, and so too was median weekly earnings at $655. Computer usage was lowest among women in farming/forestry/fisheries at 13.3 percent, and so too was median weekly earnings at $307. Across these six occupational categories the correlation between computer usage and median weekly earnings was +.84.

Use of Computers at Work by Males by Occupation
1997



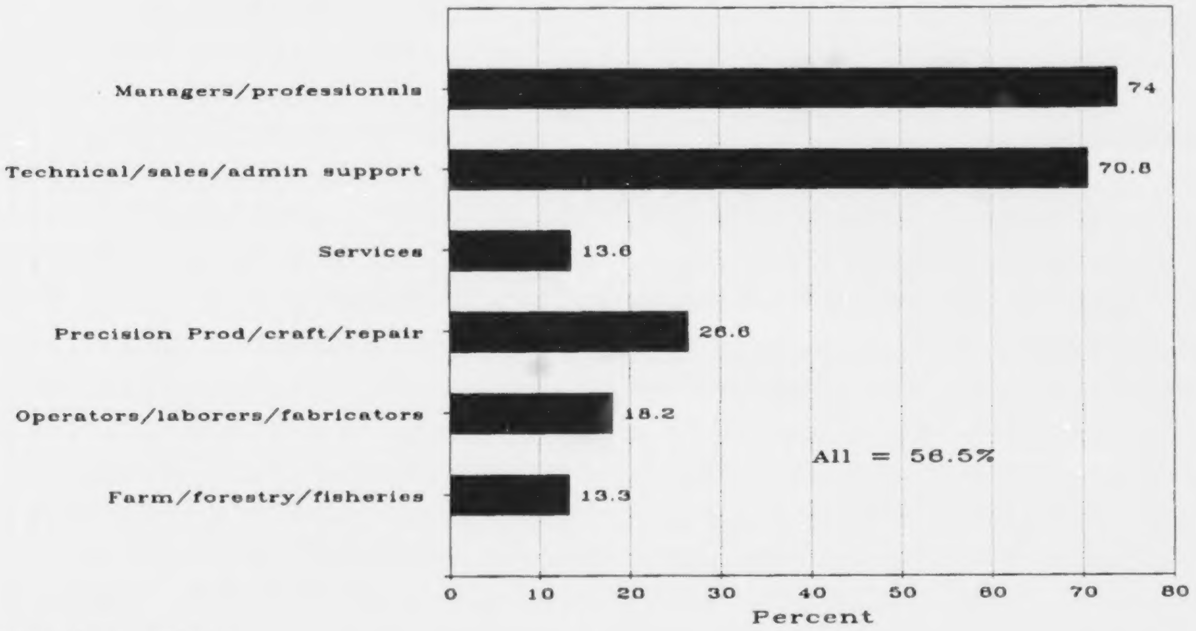
Source: Census Bureau

Median Weekly Earnings for Males by Occupation
1998



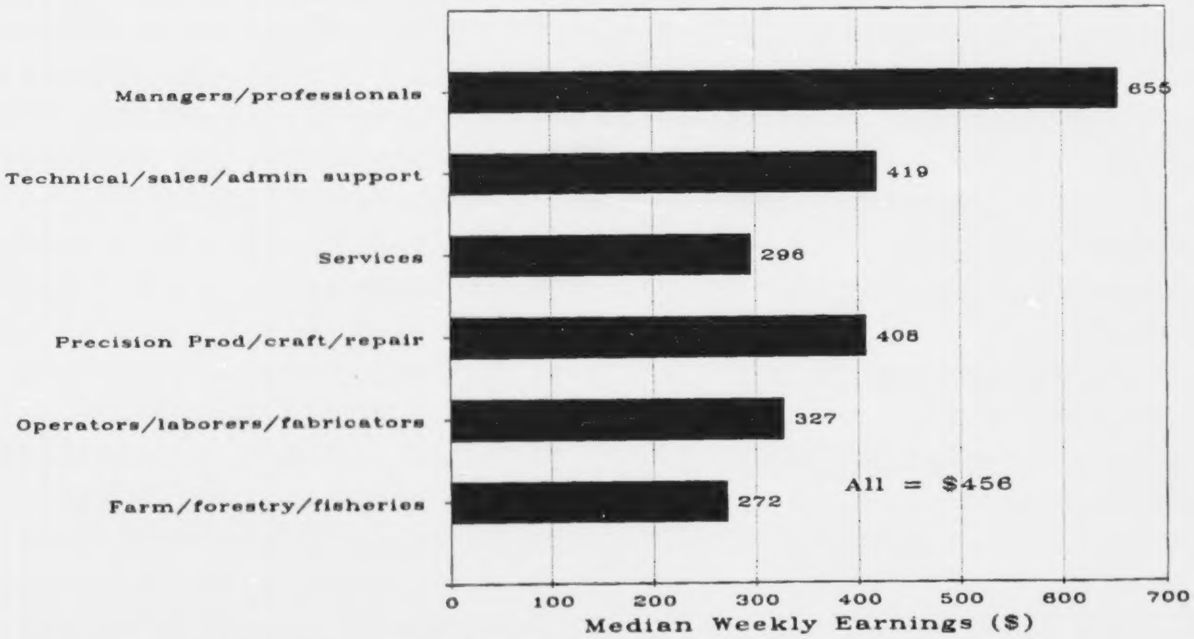
Source: Bureau of Labor Statistics

Use of Computers at Work by Females by Occupation 1997



Source: Census Bureau

Median Weekly Earnings for Females by Occupation 1998



Source: Bureau of Labor Statistics

Applications

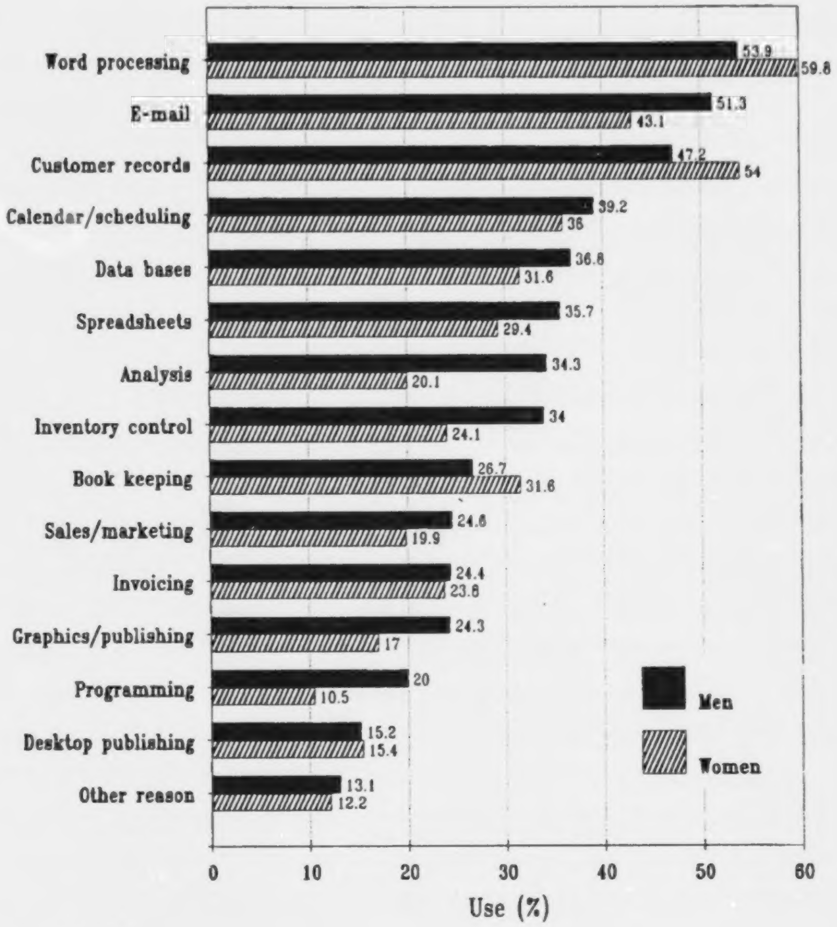
Computers in the world of work are simply powerful tools to assist workers to do their jobs. They perform these functions through specific applications. These may include word processing, communicating through e-mail, record keeping, analyses of information or myriad other functions.

Utilization of these applications vary by gender, and thus the gender use of computers is examined here. Over half of all males who use computers at work use them for word processing and for e-mail. Other important applications include customer records, scheduling, data bases, spreadsheets, analyses and inventory control.

Over half of all women who use computers at work use them for word processing and for customer records. More than a third also use them for e-mail and for calendar/scheduling.

Males are less likely than females to use computers in their jobs, and when they do use them they use computers somewhat differently than do females. Males are more likely than females to use computers to do analysis (+14.2%), inventory control (+9.9%), programming (+9.5%), e-mail (+8.2%), graphics and publishing (+7.3%), spreadsheets (+6.3%), data bases (+5.2%) and sales/marketing (+4.7%).

Purpose of Computer Use at Work by Gender
1997



Source: Census Bureau

Men are considerably less likely than women to use computers at work for customer records (-6.8%), word processing (-5.9%) and book keeping (-2.9%). These differences reflect the differences in organizational roles played by men and women who use computers at work. At lower levels of educational attainment, e.g. high school graduate or less, women are considerably more likely than men to use computers at work. At these levels of education duties of women are more likely to be secretarial in nature.

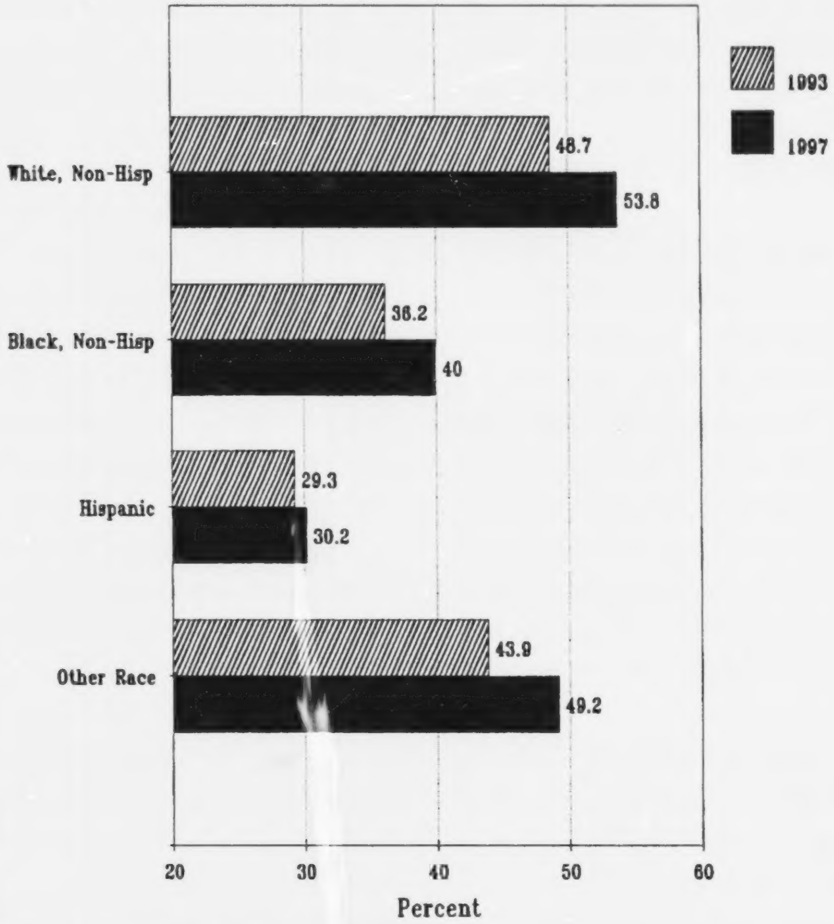
While men are less likely than women to use computers at work, when they do so they use them to do more things than do women. In the 1997 Census Bureau survey of computer use at work, 47.2 percent of males reported that they used computers for four or more applications, compared to 41 percent of females.

Demographics of Users

Besides the gender differences in computer use at work reported here, there are other differences that are very important.

Educational attainment. As the chart on the first page of this issue of OPPORTUNITY shows, computer use at work is closely related to educational attainment. About three-quarters of those holding a bachelor's degree or more use a computer at work. By comparison about a third of high school graduates use a computer at work, and among those with less than a high school education it drops down to just 12 percent. Generally

Use of Computers at Work by Race/Ethnicity
1993 and 1997



Source: Census Bureau and National Center for Education Statistics

the correlations between computer use at work and educational attainment are somewhat stronger among men than they are among women.

Family income. The chart on page 6 of this issue of OPPORTUNITY shows computer use at work by family income. Again the relationship is strong: computer use and family income are highly correlated. Computer use at work is highest among those families with incomes greater than $75,000 in 1997, and lowest in families with incomes of $5,000 to $10,000 per year.

Race/ethnicity. Use of computers at work not only varies across racial/ethnic groups, but grew at different rates across groups between 1993 and 1997. Non-Hispanic whites were most likely to use computers at work--54 percent in 1997. Hispanics were least likely to use computers at work--30 percent. Between 1993 and 1997 computer use at work increased the most among those of other race--mainly Asians--by 5.3 percent. The increase was least among Hispanics--just 0.9 percent.

Age. While just less than half of all employed persons use a computer at work, in 1997 computer usage rates were above 50 percent between the ages of 25 and 59 years. Usage rates peaked among those 40 to 49 years of age. Between 1993 and 1997 usage rates increased at all age levels, but increased the most among those 50 to 59 years of age.

Internet Use at Work

In 1997 while 49.8 percent of all workers used a computer, just 16.6 percent used the Internet on the job, according to the Census Bureau's 1997 survey. Internet use appears to parallel the previous findings.

Educational attainment. Internet use at work in 1997 was highest among those holding a bachelor's degree or more from college at 35.3 percent. The use rate dropped to 16.1 percent for those with some college, 6.6 percent for high school graduates, and 1.9 percent for those with some high school education but no diploma.

Region. Internet use was highest among workers in the west, at 19.1 percent. In the remaining regions of the U.S. Internet use at work was even at 15.6 to 15.9 percent.

Gender. Males were somewhat more likely to use the Internet at work than were females, by a 17.5 to 15.5 percent margin.

Race/ethnicity. Non-Hispanic whites were most likely to use the Internet at work at 18.4 percent, followed by those of other race (mainly Asians) at 18.3 percent, blacks at 11.2 percent and Hispanics at 7.7 percent.

Family income. Besides educational attainment, the most strikingly disparate use of the Internet at work occurred across levels of family income. In the 1997 Census Bureau survey, Internet by workers use was lowest in the $10,000 to $15,000 income range at 4.5 percent, and highest for workers with family incomes greater than $75,000 at 31.2 percent.

Occupation. In 1997 33.9 percent of managers and professionals used the Internet at work. Among technical, sales and administrative support workers it was 18 percent. By comparison, less than 6 percent of those in the other occupational categories used the Internet at work. This included services (2.2 percent), precision production, crafts and repair (5.5 percent), operators, laborers and fabricators (2.1 percent) and farming, forestry and fisheries (1.5 percent).

Industry. Internet usage was greatest among those in public administration (27.3 percent), and least in agriculture/forestry/fisheries (1.5 percent). The other industries with the highest Internet usage rates were finance/insurance/real estate at 25.4 percent and private services (20.5 percent).

Those most likely to use the Internet at work were also most likely to use the Internet at home, at 42.5 percent. Only 15 percent of those who used the Internet at work did not use the Internet at home when they had a computer at home.

Summary

The data shown here indicate that computer usage is highest (60 to 75 percent) in the occupations that have the highest earnings from employment. This includes managers, professionals, technical, sales and administrative support. This finding holds for both men and women. Similarly, computer usage is lowest in those occupations that pay the least. This includes farming, forestry, fisheries, and services. This too applies to both working men and women.

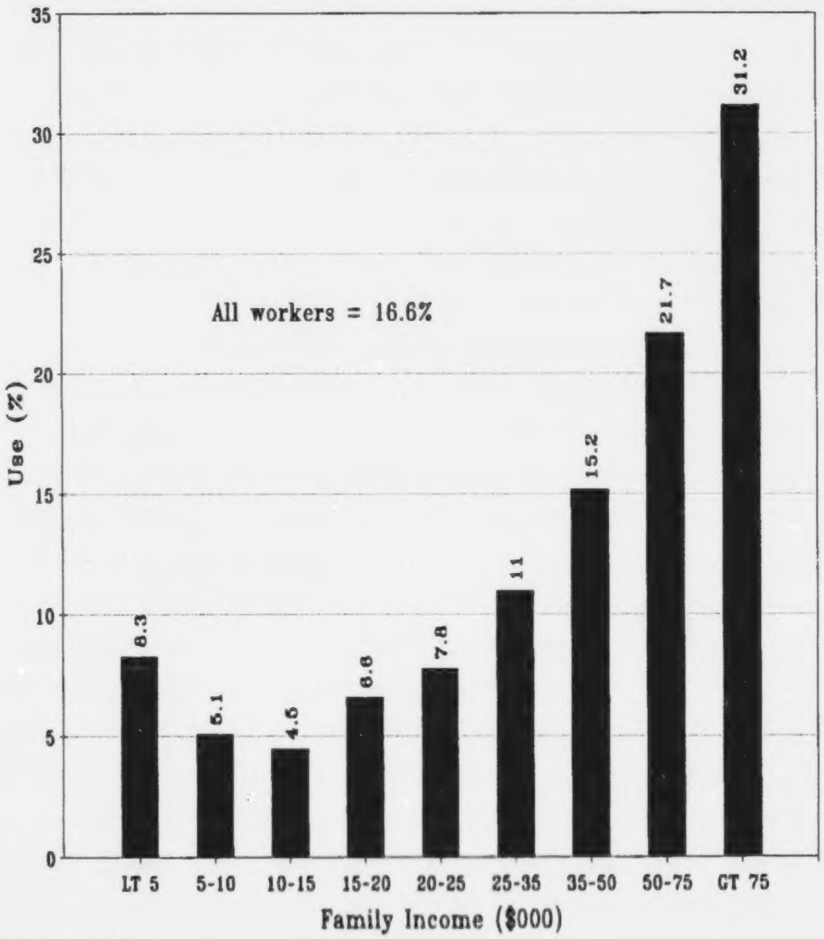
Perhaps the most consistent and powerful relationship found in these analyses is the three-way correlation between educational attainment, income and the use of information technology. There is a message here:

> *The best paid jobs in the labor market require not only the highest levels of educational attainment, but also the highest levels of fluency in information technology.*

This message takes on its greatest public social policy significance in the following sections of this analysis: information technology at home, in the schools and at college. The public policy responses to these fundamental changes rapidly working their ways through the economy are to be found in the analyses of how people are engaged--or not engaged--in these changes.

- *Who is leading, who is still in the flow, and who is being left behind?*
- *What is the public policy response to these changes, particularly through the educational system geared toward preparing young people for the future?*

Use of Internet at Work by Family Income
1997

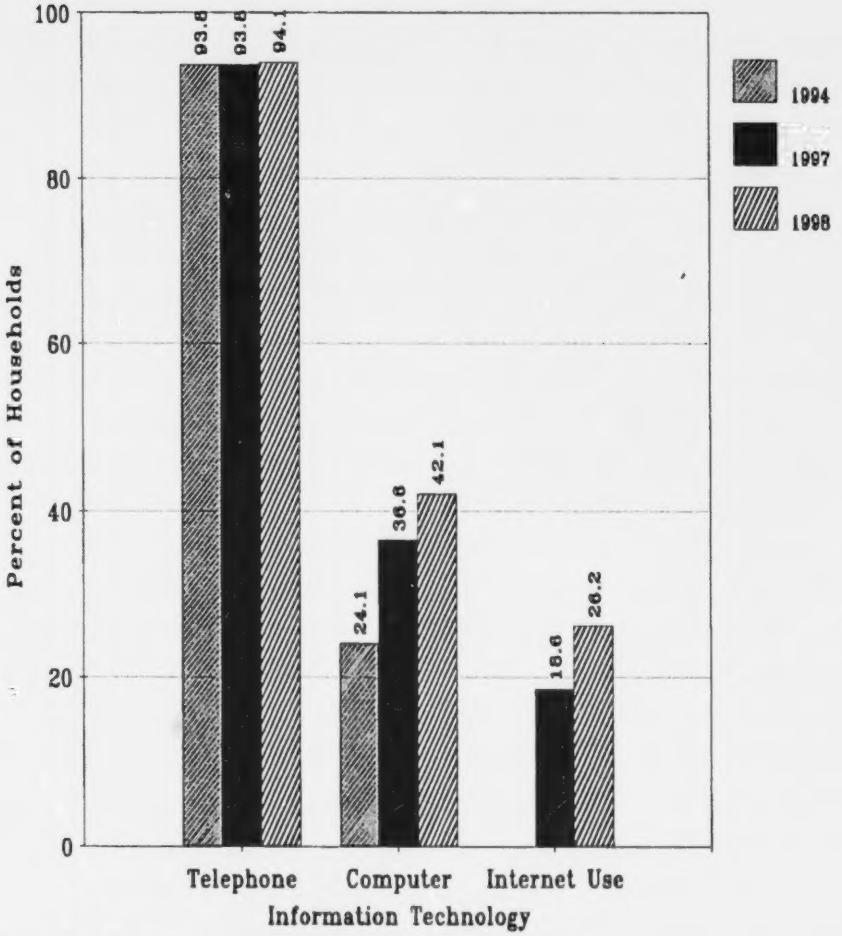


Source: Census Bureau

Home of the digital divide . . .

Information Technology in Households and Families

Households with a Telephone, Computer and Internet Use
1994, 1997 and 1998



Source: Census Bureau and National Telecommunications & Information Admin

In the structured worlds of work and education, business and government pay for information technology and prescribe its use. But in households, families make their own purchases and employ IT for private purposes. This private use occurs during off-work or out-of-school time that can be used to learn new and extend existing IT skills that carry over into work and education and thus have social benefits.

Here more than anyplace else the term "digital divide" takes on a very serious social meaning. Some families are actively engaged in buying, learning, experimenting with and using information technology to improve their lives. Other families are not. The gap between these types of families has been termed the digital divide. It describes a gap in technological literacy and fluency that also measures gaps in family living standards and prospects for the future.

These information technology gaps have immense social and economic significance. In a society plagued by growing disparities in the distribution of income, wealth, private welfare and opportunity, the digital divide further divides us into groups engaged in life and others struggling to survive on the margins of an inaccessible prosperity.

Our American income inequality has been growing since 1968. In 1998 the top income quintile of the population (with incomes above $127,529) received 49.2 percent of household income in the U.S., up from 43.8 percent in 1967. For the last 30 years income and the high living standards income supports has become increasingly concentrated in the U.S., not just in the top 20 percent of the population but in just the top five percent. This income concentration has come out of the incomes of households below $127,529 per year (in 1998 dollars).

Thus to the extent that information technology fosters living standards, then the distribution or concentration of IT is a social issue. And if the digital divide is growing, as the following data will show, then the distribution of information technology calls for a public policy response.

The following analysis focuses on four issues of household use of IT: telephone access; computer equipment and use; and Internet access and use. These issues are examined through the usual demographic filters. The surveys of the Census Bureau and the National Telecommunications and Information Administration provide the substance for what follows.

Telephones

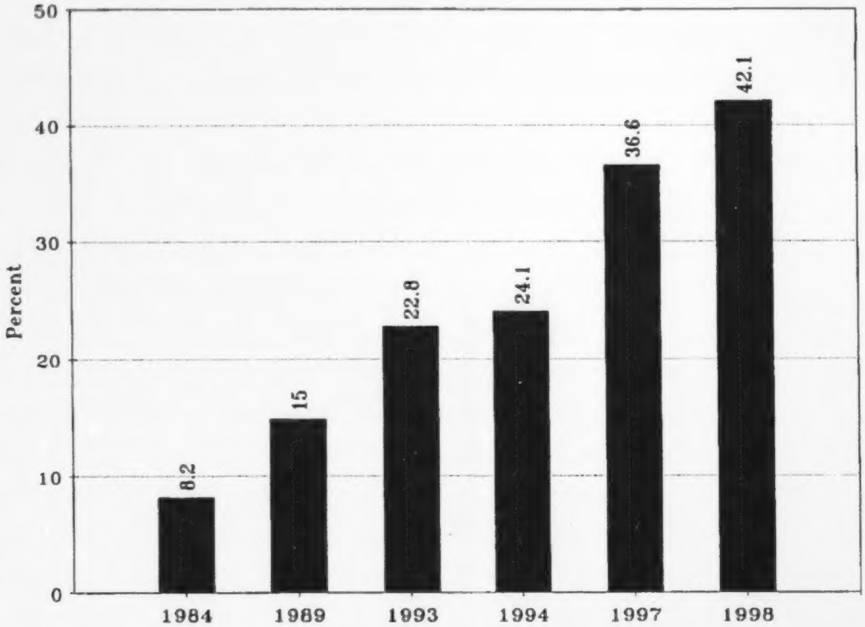
In 1998 94.1 percent of all households in the U.S. had telephone service.

- Telephone service ranged from 78.7 percent in households with incomes under $5000 in 1978, to 98.9 percent in households with incomes greater than $75,000.
- Controlling for income, American Indian households were least likely to have telephones, and Asian/pacific Islander families and white non-Hispanic families were most likely to have telephones.
- By educational attainment of householder, telephone service in 1998 ranged from 86.8 percent in households headed by a person with some high school but no diploma, to 97.8 percent in households where the head had a bachelor's degree or more from college.
- Family households without children and married couples with children were more likely than single parent households--male or female--to have telephone service.
- Households in the Northeast states were most likely to have a telephone (95.6 percent), while households in the South were least likely (92.4%).
- Minnesota had the highest proportion of households with telephones (98.0%), while New Mexico had the lowest proportion (87.1%) in 1998.

Computers

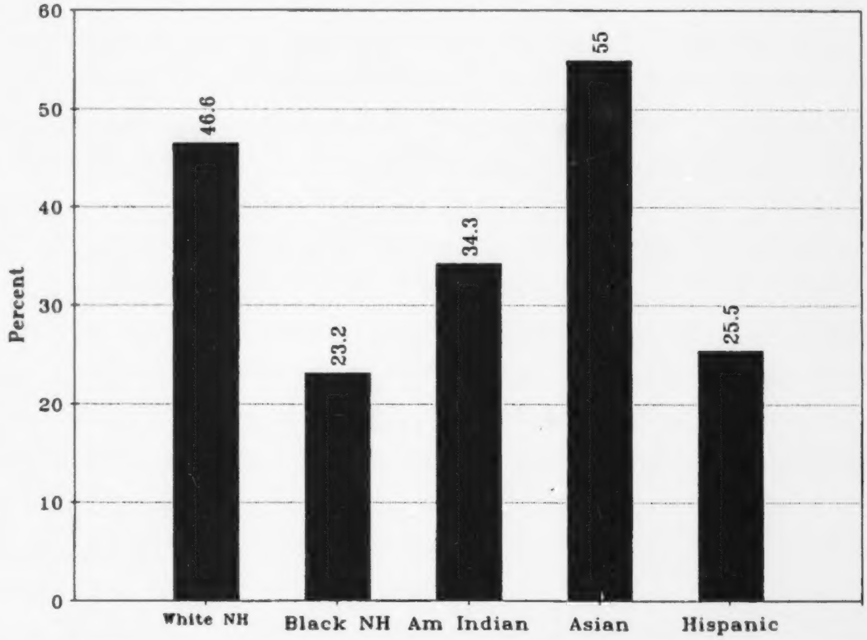
The proportion of American households with a computer has grown steadily and rapidly--if unevenly--since 1984 when the Census Bureau began gathering these data. From 8.2 percent in 1984, by 1998 42.1 percent

Households with Computers 1984 to 1998



Source: Census Bureau (CPS) and NTIA

Households with Computers by Race/Ethnicity 1998



Source: Census Bureau (CPS) and NTIA

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of all households had computers. Quite likely by this year half of all American households will have a computer in them.

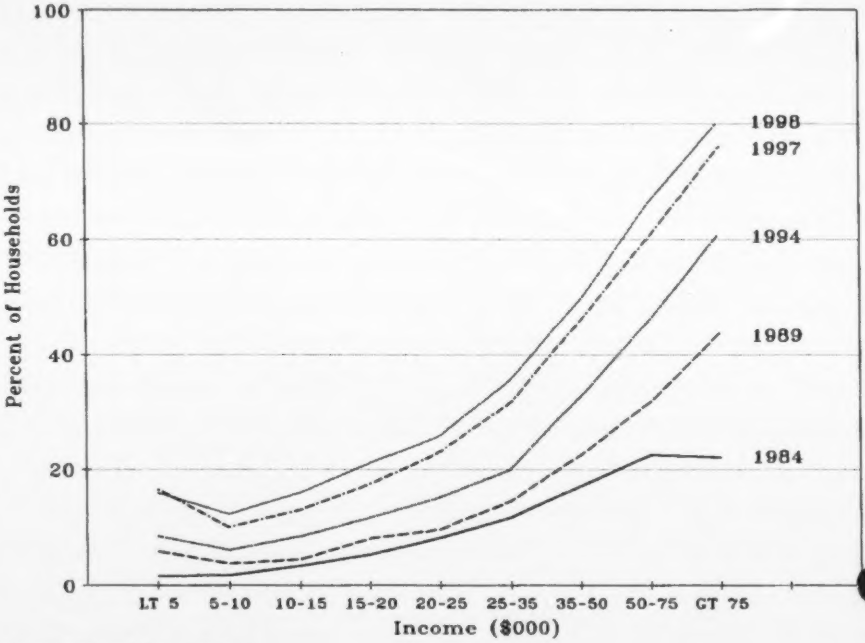
Of course not all households are equally likely to own a computer. When the population is disaggregated by race and ethnicity, in 1998 just 23.2 percent of all black non-Hispanic households owned computers, compared to 55 percent of Asian/Pacific Islander families. Similar large discrepancies in households with computers exist in the ways we describe the population:

- Across household income levels, computer ownership ranged from 12.3 percent among families with incomes of $5000 to $10,000 per year, to 79.9 percent in households with incomes greater than $75,000 per year in 1998.
- Across levels of householder educational attainment, computer ownership ranged from 7.9 percent where the householder had just an elementary education, to 68.7 percent where the householder had a bachelor's degree or more from college.
- Household computer ownership ranged from 38.0 percent in the South to 48.9 percent in the Northeast.
- Across the states computer ownership ranged from 25.7 percent in Mississippi to 62.4 percent in Alaska in 1998.
- By age groups computer ownership ranged from 25.8 percent among those 55 years and over to 54.9 percent between the ages of 35 and 44 years.
- By household type, computer ownership ranged from 27.5 percent in non-family households to 61.8 percent in married couple families with children under 18 years.

The Digital Divide

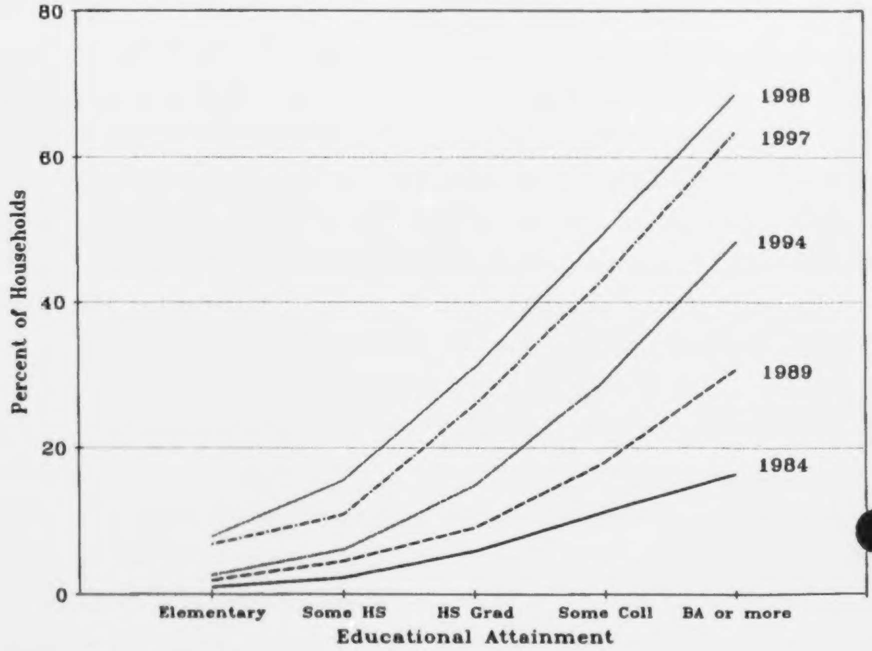
The digital divide refers to the

Households with Computers by Income
1984 to 1998



Source: NTIA and Census Bureau

Households with Computers by Educational Attainment
1984 to 1998



Source: NTIA and Census Bureau

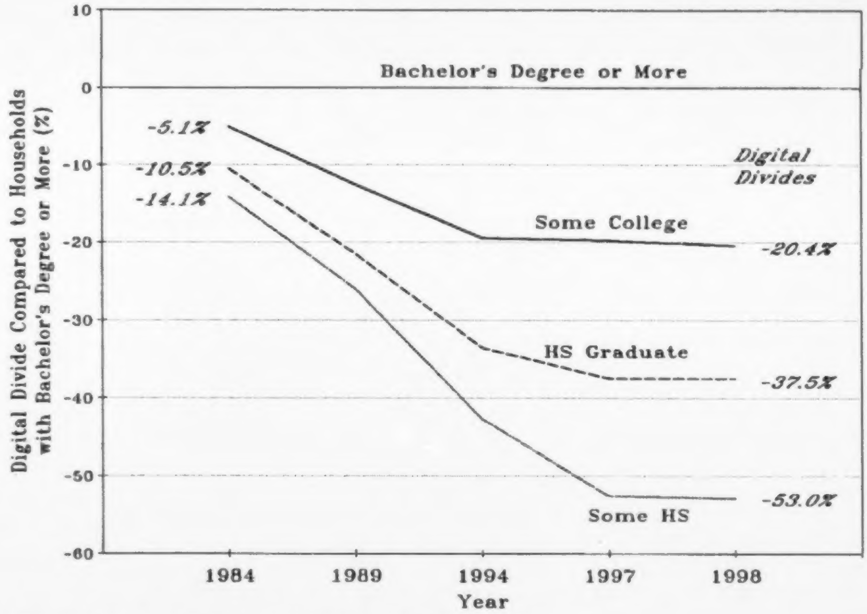
differences in computer ownership between different types of households. The two charts of this page illustrate the digital divide by educational attainment and by race/ethnicity.

The first chart on the right describes the differences in household ownership of computers by educational attainment compared to the ownership rates in households headed by persons with a bachelor's degree or more. For example, families headed by a person with a high school diploma had computer ownership rates that were 10.5 percent below college graduate families in 1984, 21.5 percent lower in 1989, 33.6 percent lower in 1994 and 37.5 percent lower in 1997 and 1998. Note that computer ownership rates increased for all groups between 1984 and 1998, but they increased fastest for households headed by persons with a bachelor's degree or more from college. At all levels of educational attainment below the bachelor's degree, the digital divide widened between 1984 and 1998. And in 1998 the digital divide was greater than it had ever been--it was still growing.

Similarly, in the second chart on this page, the digital divide between non-Hispanic white families and black and Hispanic families generally increased between 1984 and 1998. Compared to white households, the digital divide for blacks increased from 5.0 percent in 1984 to 23.4 percent in 1998. For Hispanic households the digital divide increased from 4.5 percent in 1984 to a peak of 21.4 percent in 1997, then closed slightly to 21.1 percent in 1998.

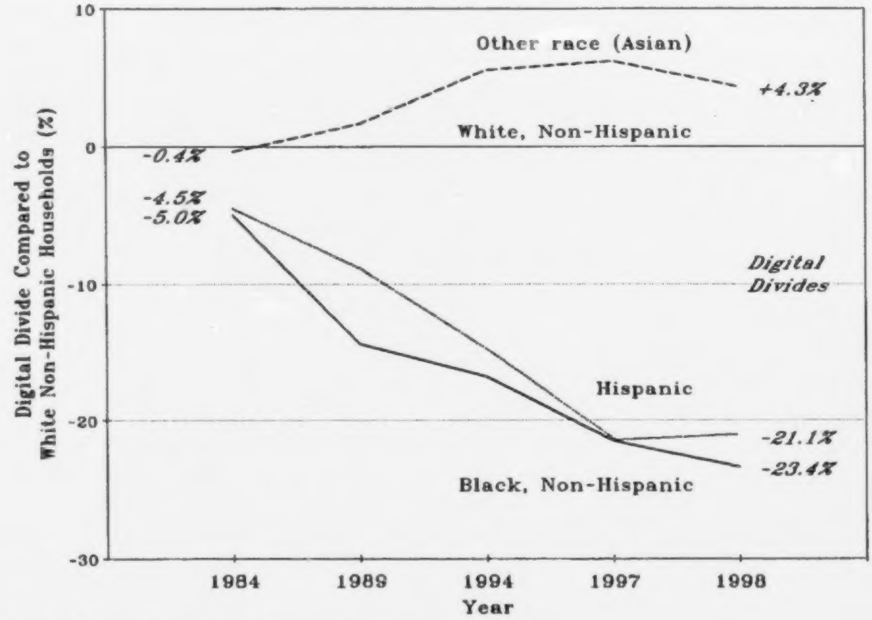
Only among those of other race--mainly Asians--did the digital divide flip. In 1984 other race households had computer ownership rates that were 0.4 percent below those of whites. But in 1998 this group had ownership rates that were 4.3 percent above those of white households.

The Digital Divide by Educational Attainment Compared to Households with Bachelor's Degree or More 1984 to 1998



Source: National Telecommunications and Information Administration

The Digital Divide by Race/Ethnicity Compared to White, Non-Hispanic Households 1984 to 1998

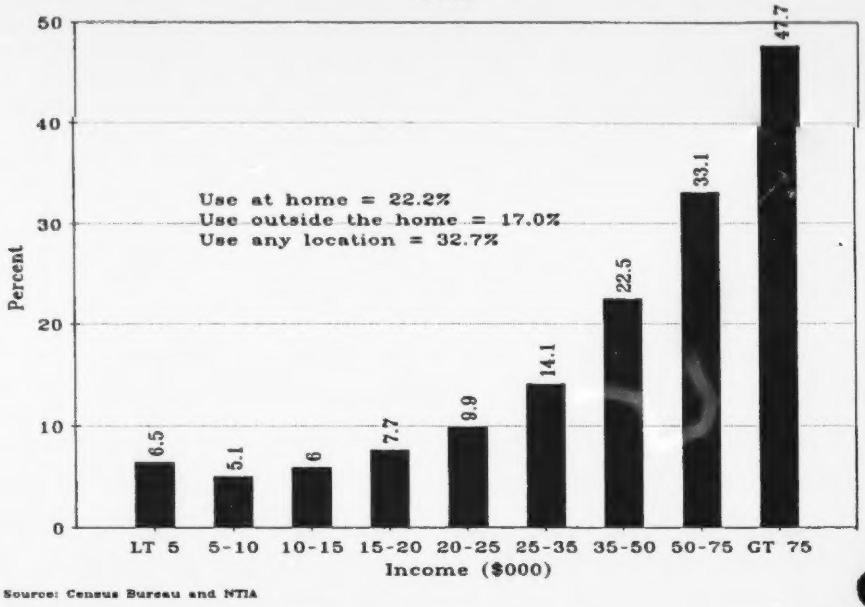


Source: National Telecommunications and Information Administration

Conclusion

Information technology is clearly important to economic development and the performance of high paying jobs. And it is growing more so. However, the distribution of information technology, particularly computers and the Internet, is highly unequally distributed across households and families. Those most likely to own computers have the highest incomes, are the best educated, and are non-Hispanic whites and Asians. Others are far behind, and generally have fallen farther behind the above groups between 1984 and 1998. In future issues we will further examine issues of information technology in schools and colleges. These data suggest that progress in addressing these inequities has been made, although more work certainly needs to be done.

Persons Using The Internet at Home by Income 1998



Source: Census Bureau and NTIA

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OPPORTUNITY
The Mortenson Research Seminar on Public Policy Analysis of Opportunity for Postsecondary Education
Number 94 **www.postsecondary.org** **April 2000**

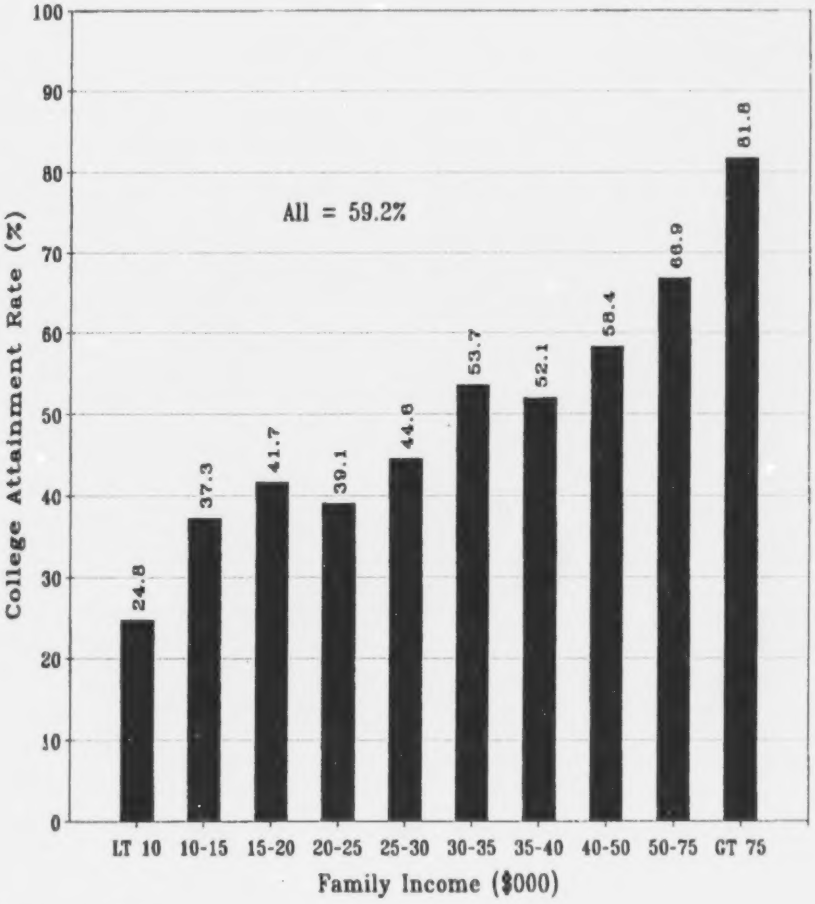
Higher Educational Opportunity by Family Income 1998

Recently OPPORTUNITY was asked:
Should all children go to college?

Our first answer was: Yes! What is the alternative? Our analyses of labor market and lifestyle data make clear that those who do not continue their educations after high school face grim and bleak prospects in life. Simply put, the labor market requires ever greater levels of education and training. Unless a person was prepared to accept living standards well below those of their neighbors, the answer to this question was a real no-brainer.

Our second thought made us think someone was prepared to play Solomon and decide who among our children was entitled to have a life and who was not. As skeptical as we are that anyone would want to play such a role, in fact federal and state policy makers make decisions with such profound implications every year. These public policy makers are responsible for providing capacity, quality and affordability of higher educational opportunity. Every year they make decisions about tuition and fees, student financial aid, admissions criteria, academic preparation, pre-college outreach, faculty compensation, institutional capacity, and many other aspects of educational opportunity that favor one group over another.

Chance for College by Age 18 to 24 Years
for Dependent Family Members
1998



Source: Census Bureau

Our third response to the posed question was: Maybe if people knew who reached college and who didn't they would rethink their premise that led to asking the question in the first place. Maybe if they knew the following data better they would ask instead:

Why are students from the highest income families three times more likely to reach

> *college than are students from the lowest income families?*

Or:

> *Why are students lucky enough to be born into high income families more deserving of large social investment in their futures than are other students unlucky enough to be born into low income families who receive the smallest social investments in their futures?*

In this analysis we concentrate on addressing the original question by describing who reaches college, and who does not, between the ages of 18 and 24 years, in terms of their family income backgrounds.

Our analysis breaks down chance for college into its two components: high school graduation, and then college participation for those who have graduated from high school. The product of these two rates is chance for college. This analysis uses family income intervals developed by the Census Bureau that begin at less than $10,000 per year and go up to greater than $75,000 per year. Furthermore, our analyses examine these data by gender and race/ethnicity.

The result of analyses in these disaggregations of the population portrays a complex picture. Family income alone is critical to describing disparities in educational opportunity. But further desegregating the population by gender and race/ethnicity shows that differences in family income alone are insufficient to explain further differences between men and women, and between whites, blacks, Asians and Hispanics.

Even wise old Solomon would struggle with the question about whether college is for all children. It may be that it is, and that it isn't, both at the same time.

The Data

All data used in this analysis were collected by the Census Bureau in the October 1998 Current Population Survey (CPS). This Survey is a monthly survey of about 50,000 households used primarily to collect data on employment and unemployment of the civilian, non-institutional population of the United States.

The October CPS includes a supplement that gathers school enrollment data on household members. School enrollment data from nursery school through college are gathered on all household members.

The report from the October 1998 Current Population Survey is:

Martinez, G. M., and Curry, A. E. (September 1999.) *School Enrollment-Social and Economic Characteristics of Students (Update).* Current Population Reports. P20-521. Washington, DC: U.S. Department of Commerce, Census Bureau.

This report is available for download from the Census Bureau's website at:

http://www.census.gov/population/www/socdemo/school.html

Adobe Acrobat software--free, through a link on the site--is required to download, view and print these .pdf files.

The data from Table 14 in this report were used to prepare the following charts. This table in the 1998 report has been substantially reduced and altered from the corresponding Table 15 in reports published for 1970 through 1997. More than three quarters of the previous tables' data has been eliminated, and some types of data reported in the past are no

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Mission Statement

This research letter is founded on two fundamental beliefs. First, sound public social policy requires accurate, current, independent, and focused information on the human condition. Second, education is essential to the development of human potential and resources for both private and public benefit. Therefore, the purpose of this research letter is to inform those who formulate, fund, and administer public policy and programs about the condition of and influences that affect postsecondary education opportunity for all Americans.

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longer reported.

Thus, the data reported here is not strictly comparable to that reported previously. Our intent at OPPORTUNITY is to reanalyze the data published over the last decade to reconstruct a comparable time-series of data in family income quartiles as we have done in the past. We hope to complete this task over the summer and report revised numbers under consistent definitions by next fall.

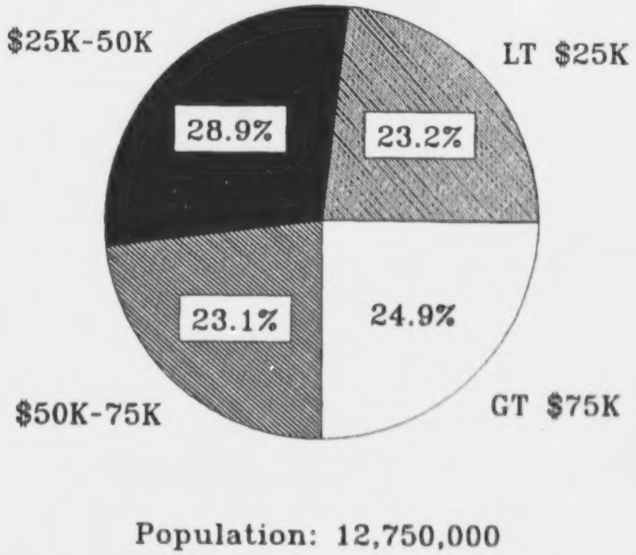
Population Distribution by Family Income

In 1998 a special data peculiarity makes explaining the distribution of the population of dependent 18 to 24 year olds by family income quite simple. Roughly a quarter of the population comes from families with incomes of less than $25,000 per year, a generous quarter of the population comes from families with incomes between $25,000 and $50,000 per year, another quarter comes from families with incomes of between $50,000 and $75,000, and the final quarter of the population come from families with incomes of more than $75,000 per year. This distribution is shown in the top chart on this page.

By contrast, the second chart on this page shows the distribution of dependent 18 to 24 year olds that reached college (currently enrolled, not currently enrolled with one to three years of college, and not currently enrolled with bachelor's degree or more from college).

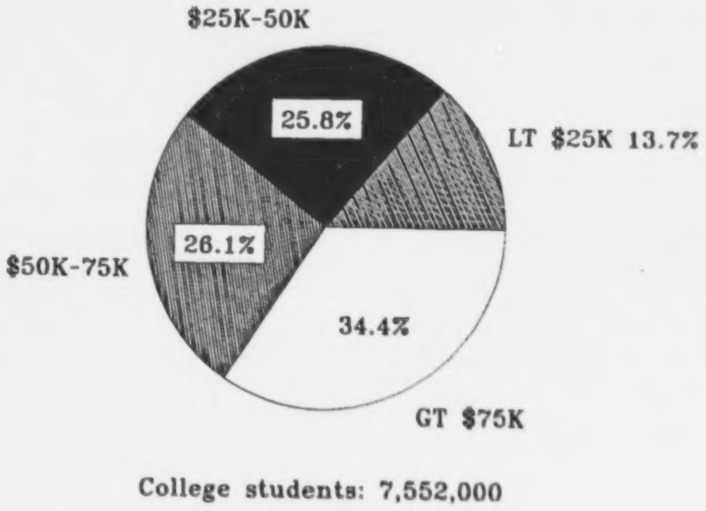
Here the share of college students from the families from family incomes below $50,000 has shrunk sharply, from 52.1 percent of the population to 39.5 percent of those who reached college. Above $50,000 of family income, the proportion of the population--48.9 percent--has grown to 60.5 percent of those who reached college.

Population of Dependent 18 to 24 Year Olds
by Family Income
1998



Source: Census Bureau

College Enrollment of Dependent 18 to 24 Year Olds
by Family Income
1998



Source: Census Bureau

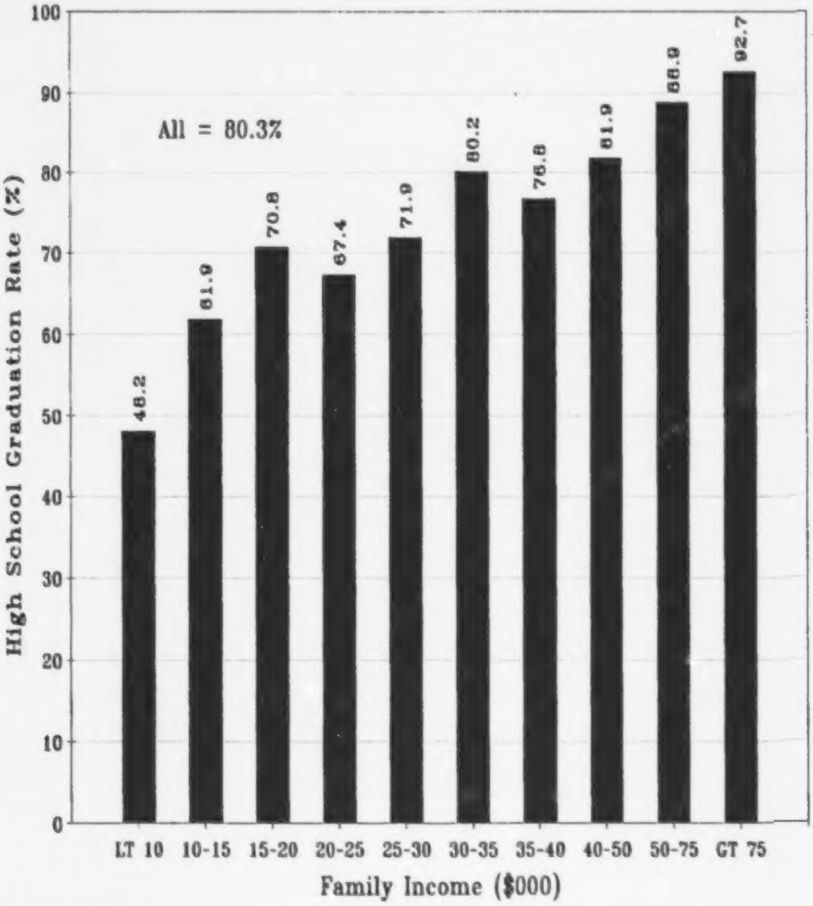
Chance for College

Chance for college among dependent 18 to 24 years olds is the proportion of this population that is currently or has been enrolled in college. It is the mathematical product of the high school graduation rate and the rate at which those who have graduated from high school have enrolled in college between the ages of 18 and 24 years.

In October of 1998, 59.2 percent of this population had reached college. Out of 12,750,000 dependent 18 to 24 year olds on whom family income information was available, 5,933,000 were currently enrolled in college, 1,184,000 were not currently enrolled and had less than a bachelor's degree, and 435,000 were not currently enrolled and had received a bachelor's degree or more from college.

As the chart on page 1 of this issue of OPPORTUNITY shows, chance for college ranged from 24.8 percent for those from families with incomes of less than $10,000 per year, to 81.8 percent for those from families with incomes of more than $75,000 per year. A student lucky enough to be born into the high income family was 3.3 times more likely to reach college than was the student born into the lowest income family.

High School Graduation Rate by Family Income
for Dependent Family Members 18 to 24 Years
1998



Source: Census Bureau

High School Graduation

The population begins sorting out before college. As the chart on this page shows, the high school graduation rate for dependent 18 to 24 year olds was 80.3 percent in 1998.

But across family income levels this rate ranged from 48.2 percent for those from families with less than $10,000 per year in family income, to 92.7 percent for those from families with more than $75,000 in income in 1998.

The student lucky enough to be born into the high income family was nearly twice as likely to make it over the first hurdle to college as was the student born into the lowest income family.

College Participation

In 1998 73.7 percent of the high school graduates matriculated in college.

The sorting of the population continued further in college participation behaviors among those who graduated from high school. The college participation rate ranged from 51.5 percent of those from families with incomes of less than $10,000 per year, to 88.3 percent of those from families with incomes of more than $75,000 per year.

The differences in the high school graduation and college participation rates across family income levels are magnified when we use their product to describe chance for college. Thus, when the proportion of the population reaching college is shown (page 1), the slope of the rates across income greatly steepens. In this analysis we unfortunately lack college completion rate measures. Had we these data available, the disparities shown here would be greatly further magnified.

So far these data have shown simple, straightforward, strong relationships between family income and chance for college. But the relationship gets considerably more complicated when these data are disaggregated for men and for women, and for whites, blacks, Asians and Hispanics. Here, some groups perform better than do others in the educational pipeline. These differences suggest that other significant influences besides family income affect the way broadly categorized students move through the educational systems toward college by ages 18 to 24.

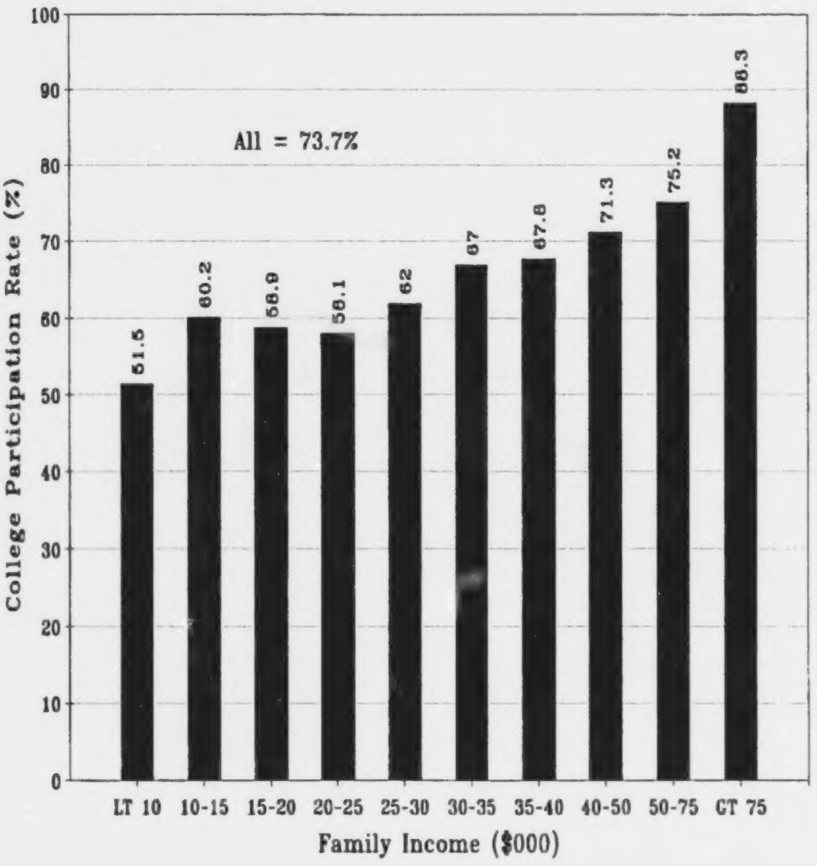
Gender

The rates at which males and females move through the educational pipeline into college by the ages of 18 to 24 years are shown in the charts on pages 6 and 7. While males and females presumably live on the same planet at the same time, these data suggest males and females may be living in two quite different worlds.

Population. Among dependent 18 to 24 year olds family members, there were 6,985,000 males and 5,765,000 females in 1998 according to the Census Bureau. This means that there were 121 males for every 100 females. Since each year 105 male babies are born for every 100 female babies in the United States, clearly there are young women (and men) missing from these numbers.

Among males the missing are partly accounted for by military service and incarceration, since the Current Population Survey is limited to the civilian, non-institutional population. In addition according to the Census Bureau, in 1998 about 60 percent of 18 to 24 year males lived at home with their parent(s)--a figure that has remained constant since the early 1980s. For males, median age at first marriage has risen gradually from 22.5 years in the mid 1950s to 24.7 by 1980, 26.1 by 1990 and 26.7 in 1998.

College Participation Rate by Family Income
for Dependent Family Members 18 to 24 Years
Who Have Graduated from High School
1998



Source: Census Bureau

Among females marriage occurs earlier, but like men women are deferring marriage. In the late 1950s median age of women at first marriage was about 20.2 years. By 1980 it had risen to 22.0, to 23.9 by 1990 and 25.0 years by 1998. Between the early 1980s and 1998, about 48 percent of women between the ages of 18 and 24 years were living at home with their parent(s).

Chance for college. As the chart on the following page shows, chance for college for dependent family members 18 to 24 years increases with family income for both males and females. Among males the chance for college increased from 19 percent for those from families with incomes of less than $10,000 per year, to 77 percent for those from families with incomes of more than $75,000 per year. Among females the range was from 32.3 percent among those from lowest income families to 88.1 percent for those from highest income families.

At every level of family income, females were more likely to have reached college than were males. For all males and females who were both dependent family members and between the ages of 18 and 24 years, the difference was 13.2 percent. Controlling for family income, the average difference at each of the ten income intervals was 14.4 percent. Either way, women were considerably more likely than men to reach college.

High school graduation. The overall high school graduation rate in 1998 for dependent 18 to 24 year old males was 76.9 percent, compared to 84.6 percent for females. For males the rate ranged from 43.3 percent for those from families with incomes of less than $10,000 per year, to 90.6 percent for those from families with incomes of more than $75,000 per year. For females the rate of high school graduation ranged from 54.5 percent at the lowest family income level, to 95.4 percent at the highest level. At every level of family income, the rate for females was greater than the rate for males.

College participation. For those dependent 18 to 24 year olds who had graduated from high school, the college participation rate in 1998 was 69.3 percent for males compared to 78.6 percent for females.

And as we have seen before, college participation rates increased with income for both males and females. For males the rate increased from 44 to 85 percent between the lowest and highest family income ranges. For females the increase was from 59.3 to 92.3 percent between the lowest and highest family income ranges.

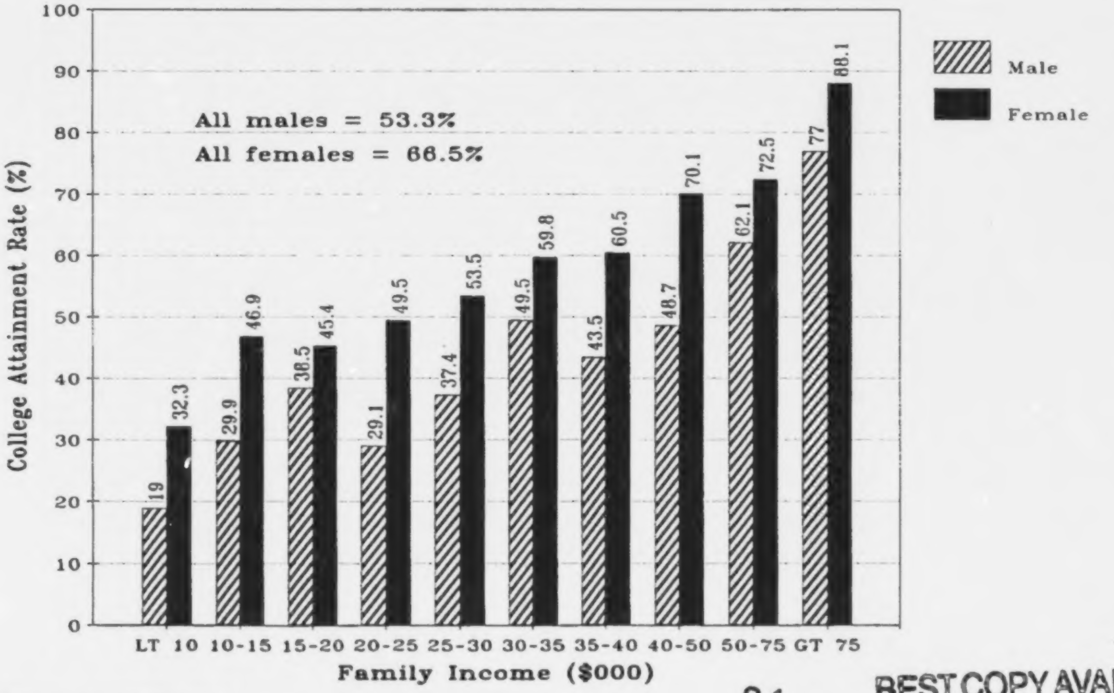
These data illustrate the complexity of educational opportunity issues facing students. Clearly family income plays some role in both high school graduation and college participation for both males and females.

However, at every level of family income, females are more likely to both graduate from high school and then to matriculate in college than are males. As a result, the chances for college for men and women are very different--even when family income is controlled. Something other than family income is strongly influencing males and females differently in the ways they move through the educational system. These data describe the outcomes, but unfortunately not the causes.

Race/Ethnicity

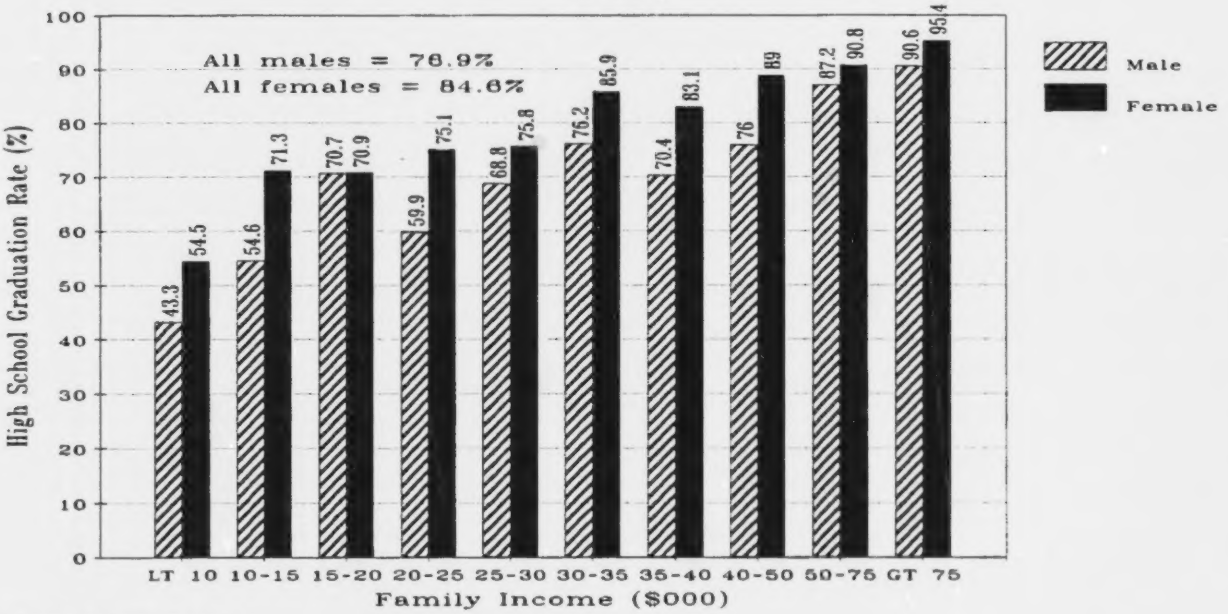
Chance for college can be calculated

Chance for College by Gender and Age 18 to 24 Years
for Dependent Family Members
1998



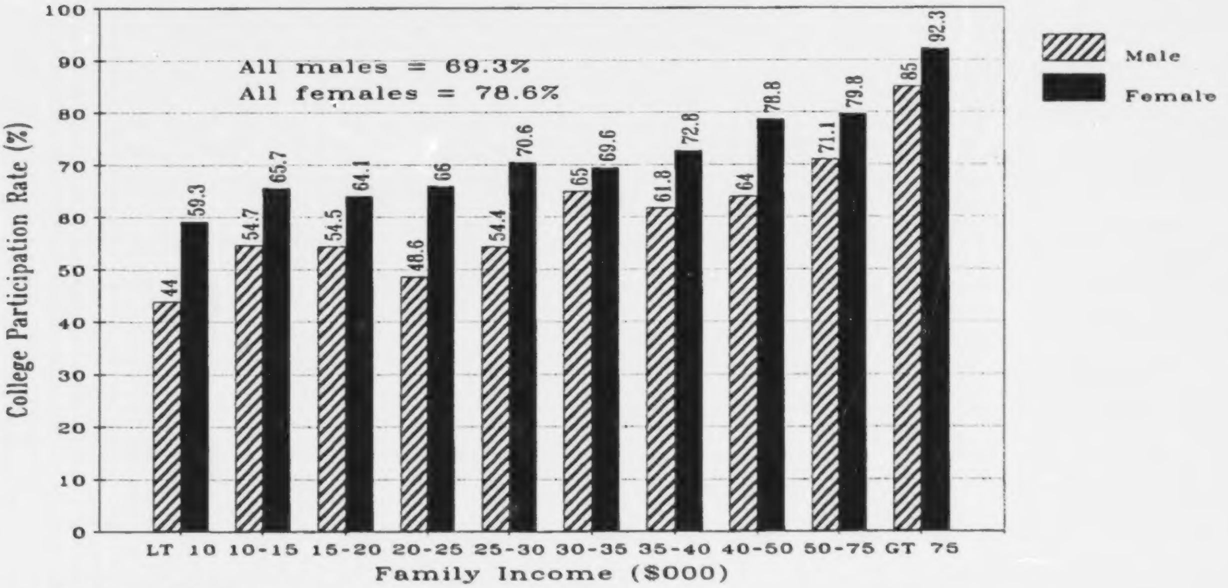
Source: Census Bureau

High School Graduation Rate by Gender and Family Income for Dependent Family Members 18 to 24 Years 1998



Source: Census Bureau

College Participation Rate by Gender and Family Income for Dependent Family Members 18 to 24 Years Who Have Graduated from High School 1998



Source: Census Bureau

for four distinct and nearly all-inclusive racial/ethnic groups:

- white, non-Hispanic
- black, non-Hispanic
- Asian/Pacific Islander, non-Hispanic
- Hispanic

These data are also for dependent 18 to 24 year old family members.

Population. The distribution of these racial/ethnic groups in 1998 was:

white	64.4%
black	15.7%
Asian/PI	4.1%
Hispanic	15.0%
Other	0.8%

These population groups are distributed very differently across the family income intervals reported here. In 1998 median family income for dependent 18 to 24 year olds was:

white, non-Hispanic	$59,467
black, non-Hispanic	$27,042
Asian/PI, non-Hispanic	$50,638
Hispanic	$25,867

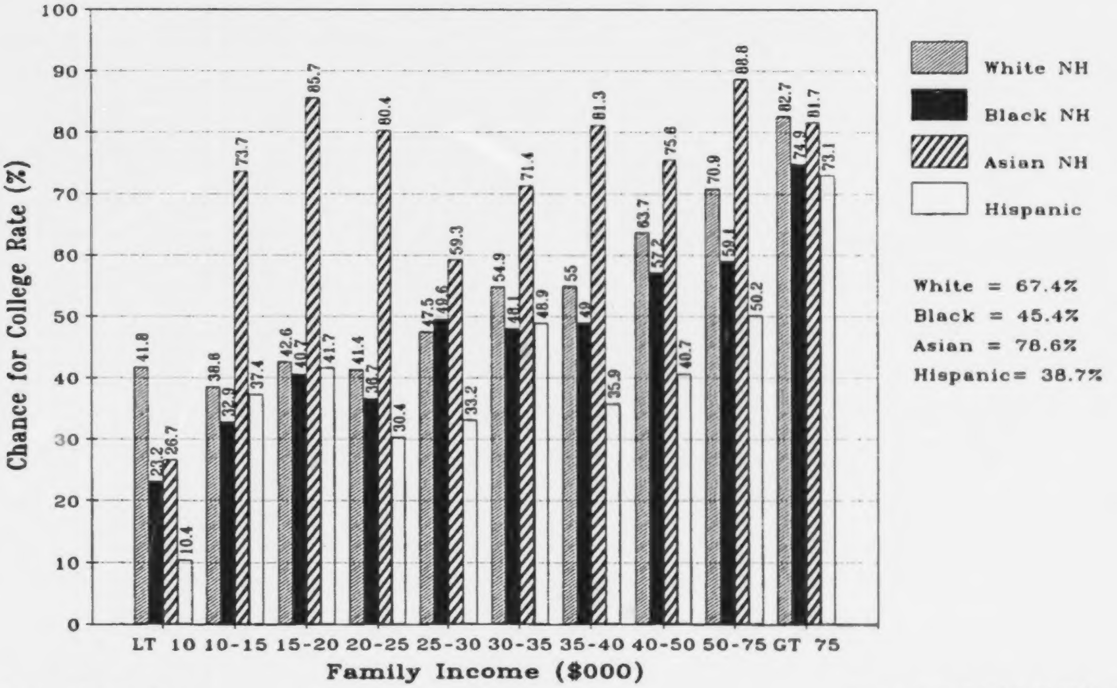
Chance for college. The proportion of dependent 18 to 24 year olds reaching college varied widely by race/ethnicity. At the high end 78.6 percent of the Asians reached college. At the low end just 38.7 percent of the Hispanics reached college.

For all groups, chance for college increased with family income. However, at each level of family income there was wide variation between groups, and some of this variation was consistent. At all but the lowest and highest levels of family income, Asians were most likely to reach college. At most levels of family income either blacks or Hispanics were least likely reach college.

Controlling for family income, and using the white non-Hispanic population for reference, Asians reached college at an average rate 18.6 percentage points greater than whites. Blacks' chances for college, controlling for family income, averaged 6.8 percent below the white rate. Hispanics' chances for reaching college controlling for family income, averaged 13.7 percent below the white rate.

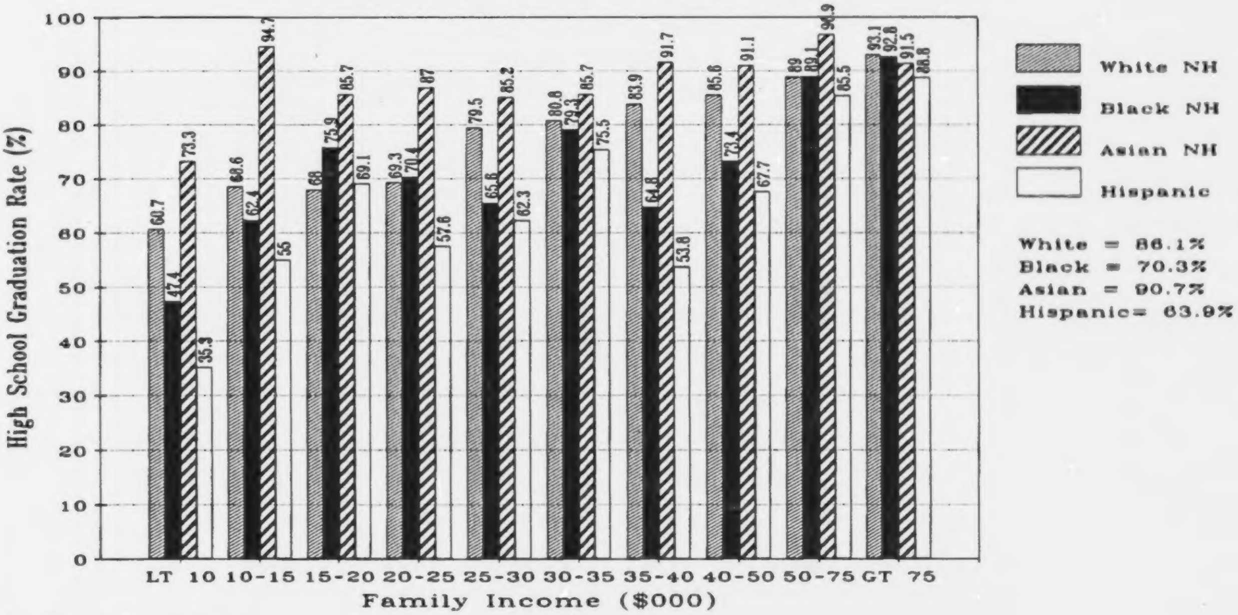
Because we have controlled for family income, these disparities across racial/ethnic groups cannot be attributed to limited family resources to finance education. If Asians can do it, then whites, blacks and Hispanics at the same income level should be able to do it too. The same was concluded by the differences between male and female chances for college. If women can get to college from any given level of family income, then men should be able to also. Clearly

Chance for College by Family Income and Race/Ethnicity
for Dependent Family Members Age 18 to 24 Years
1998



Source: Census Bureau

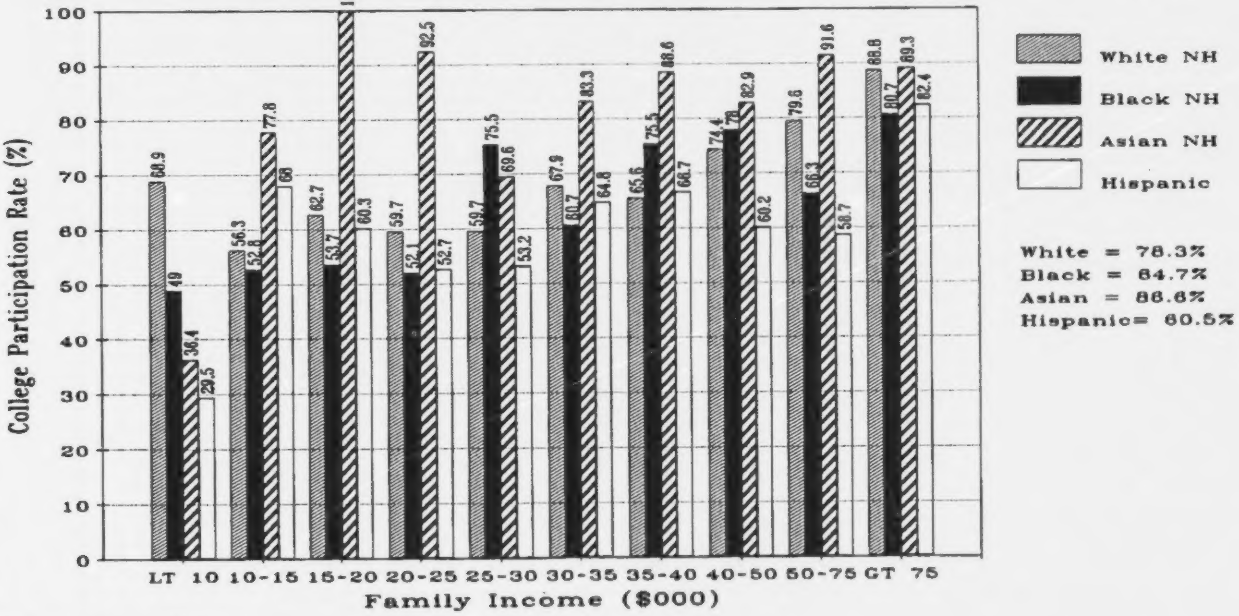
High School Graduation Rate by Family Income and Race/Ethnicity for Dependent Family Members Ages 18 to 24 Years, 1998



White = 86.1%
Black = 70.3%
Asian = 90.7%
Hispanic= 63.9%

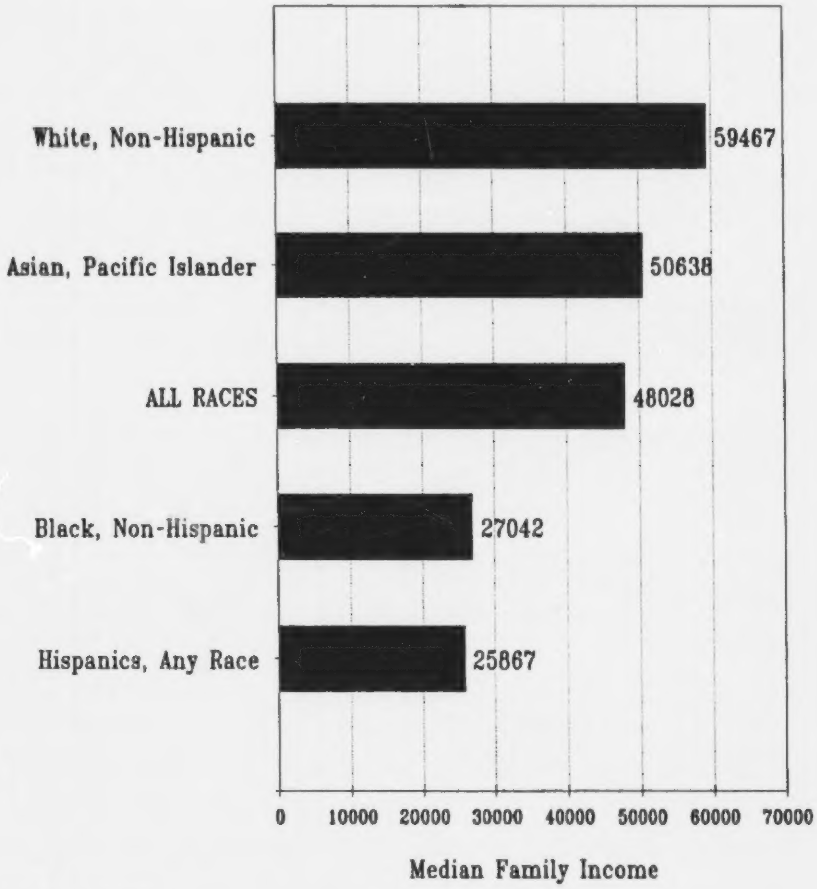
Source: Census Bureau

College Participation Rate by Family Income and Race/Ethnicity for Dependent Family Members Age 18 to 24 Who Have Graduated from High School, 1998



White = 78.3%
Black = 64.7%
Asian = 86.6%
Hispanic= 60.5%

Source: Census Bureau



Median Family Income by Race/Ethnicity for Families with 18 to 24 Year Old Dependents 1998

Source: Census Bureau

some groups are more successful than others--they set the bar at a high standard for other groups to achieve.

High school graduation. Across these racial/ethnic groups, the high school graduation rate among dependent 18 to 24 year olds ranged from 90.7 percent among the Asians to 63.9 percent among the Hispanics. The high school graduation rate increased with family income among all groups.

The black high school graduation rate stood 15.3 percentage points below the white rate for the population. However, black median family income is less than half of white median family income. When differences in family income are controlled for, black high school graduation rates average 5.7 percent lower than those of whites. Expressed another way, differences in family income account for about 62 percent of the gross difference between white and black high school graduation rates.

The Asian high school graduation rate was 4.6 percentage points above the rate for non-Hispanic whites. However, median Asian family income was less than that of whites. When family income differences were controlled, the Asian high school graduation rate was 10.4 percentage points above the white rate.

The Hispanic high school graduation rate was 22.2 percent below the non-Hispanic white high school graduation rate in 1998. But Hispanic median family income was less than half that of whites. When this difference is controlled, the Hispanic high school graduation rate was 12.8 percent below the white rate.

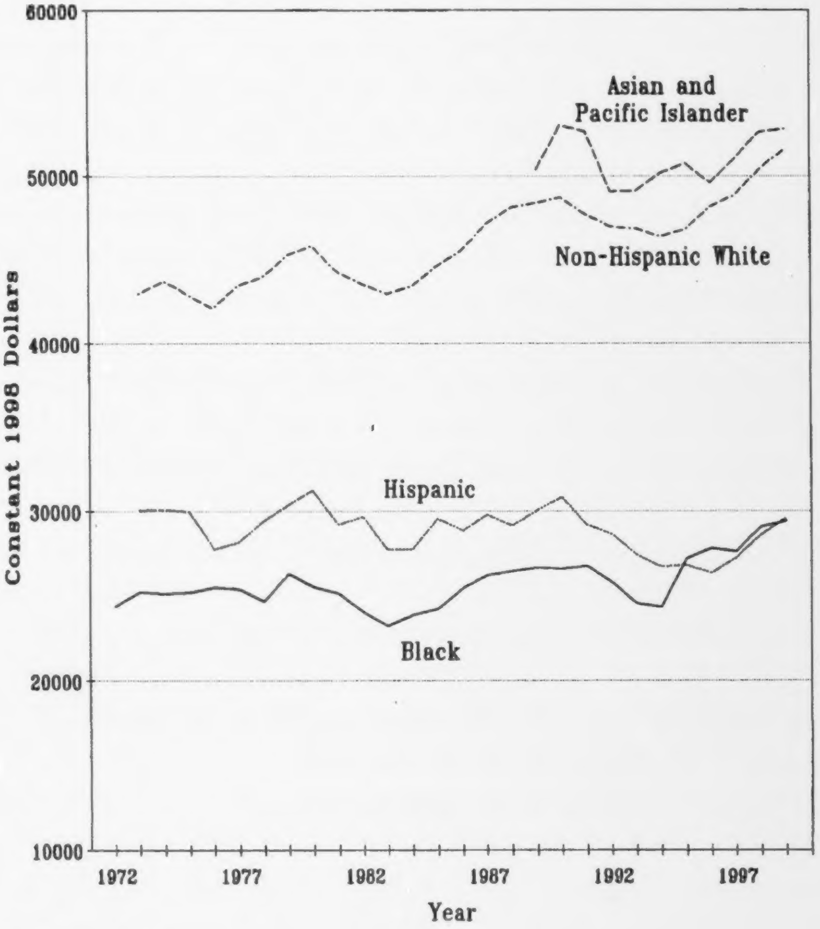
College participation. For each racial/ethnic group, college participation rates among dependent 18 to 24 year old high school graduates increased with family income. Compared to the rate for whites, the rate for Asians stood 8.3 percent above the white rate, while the rate for blacks was 13.6 percent below and the Hispanic rate was 17.8 percent below the white rate.

These differences, of course, shift when differences in family income is controlled for. For Asians the income-adjusted college participation rate was 12.8 percent above the white rate. Similarly, the income-adjusted rate for blacks was 3.9 percent below the rate for whites, and the Hispanic rate was 8.7 percent below the white rate.

These data from the Census Bureau make two powerful points. First, family income exerts a significant influence on educational opportunity. The effects are found both in high school graduation as well as college participation for those who graduate from high school. Second, family income does not explain everything. Controlling for differences in income, females do far better than males. Similarly, controlling for income, Asians and whites do better than do blacks and Hispanics in both high school graduation and college access.

Economic Status and Educational Attainment Across Racial/Ethnic Groups
1970 to 1998

Median Family Income by Race/Ethnicity
1972 to 1998



Source: Census Bureau

Some large shifts are now occurring in the economic welfare of the major racial/ethnic populations of the United States. These shifts are directly linked to changes in educational attainment within these groups over the last three decades.

The link between educational attainment and economic welfare has been a relentless theme in OPPORTUNITY since we began publishing in 1992. We have documented and reported this link for individuals (detailed by gender, race/ethnicity, age, state), for families and households (detailed by race/ethnicity), for cities, for states and for the entire country. Since the early 1970s, this link has steadily strengthened as economic welfare has not so much grown as it has been redistributed--according to educational attainment. The consistent finding from these analyses is:

> *More education yields greater economic welfare. Less education yields less economic welfare*

Here we examine data on economic welfare (family income, poverty) over time (since the early 1970s) for the major racial/ethnic groups in the U.S. population:

- white, non-Hispanic
- black, non-Hispanic
- Asian/Pacific Islander, non-Hispanic
- Hispanic

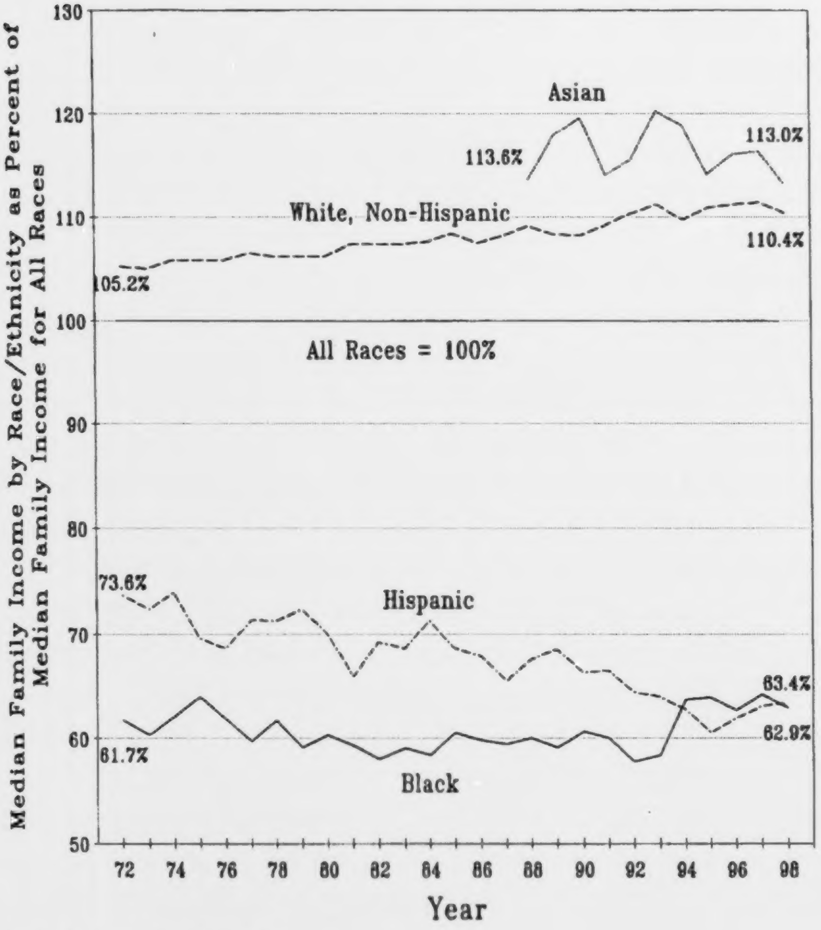
This grouping is mutually exclusive, and includes nearly all Americans.

Then we examine the changes in the educational attainment of these groups over time.

The results of this analysis show a large relative gain in the economic welfare for non-Hispanic whites, gains for blacks, and a very large loss on one measure of economic welfare and a modest gain on the other for Hispanics since the early 1970s.

This shift in economic welfare has direct links to changes in educational attainment over this period of time. Whites and blacks have made substantial progress in educational attainment. Hispanics, by comparison, have not. Given the strong and strengthening link between educational attainment and economic welfare, the message in these data is that gains in educational attainment are required to produce real gains in private economic welfare.

Equity Index for Median Family Income by Race/Ethnicity, 1972 to 1998



Constructed from Census Bureau Data

The Data

Our analysis of Census Bureau data reported here is actually derived from several previous studies reported in OPPORTUNITY and presented at national conferences over the last year. These earlier studies were consistently finding that blacks were making educational progress and Hispanics were not, and that blacks were making economic progress and Hispanics were not. This analysis synthesizes these disparate findings.

In addition, after we had prepared this syntheses, we found that other analysts had found about the same patterns in the data. Specifically, the Council of Economic Advisers in 1997 produced a report *Changing America, Indicators of Social and Economic Well-Being by Race and Hispanic Origin.* This report covered themes addressed here, in considerably greater detail. This report may be downloaded free from the Government Printing Office website at:

http://w3.access.gpo.gov/eop/ca/index.html

The raw data on income and poverty used here are all available from the Census Bureau's website. Our Equity Indexes have been constructed from these published data. The education data are published by the sources as noted.

Economic Measures of Welfare

Two measures of economic welfare are used in this analysis: median family income and poverty rates for families with children. Many others are available, such as various measures of employment and unemployment.

Median family income. In 1998 median family income for all races was $46,737. Across racial/ethnic groups of the population, median family incomes were:

white, non-Hispanic	$51,607
black, non-Hispanic	$29,404
Asian, non-Hispanic	$52,826
Hispanic	$29,608

The chart on page 11 shows median family income by the above categories between 1972 and 1998 in constant dollars. Generally, over the period of this chart, real median family incomes have increased for whites and blacks, and declined slightly for Hispanics.

To compare trends in median family income across racial/ethnic groups, we have constructed an Equity Index using the Census Bureau's data reported in the chart on page 11. This Index is constructed by dividing the median family income for each race by the median family income for all races for each year. The resulting ratios form the Equity Index.

The plot of these Equity Indices is shown in the chart on this page. For whites, the Equity Index for median family income has grown from 105.2 percent of the median for all races in 1972, to 110.4 percent by 1998. This indicates that relative to the population of families, whites have made large gains in their family incomes compared to the population of about 5.2 percentage points over this period.

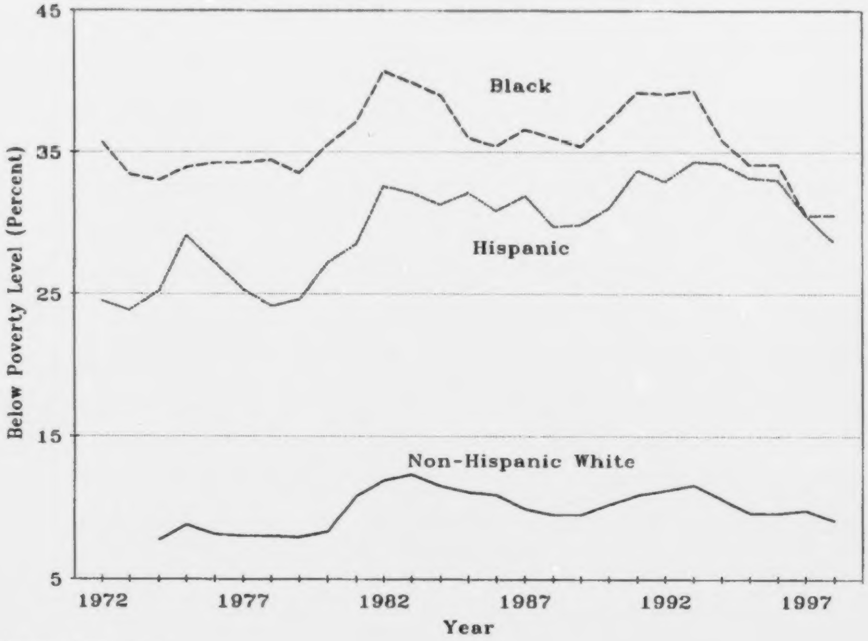
Blacks made a small gain in median family income over this period. The Equity Index rose from 61.7 to 62.9 percent between 1972 and 1998. That is to say, median income for black families is just over half of what it is for all families, but this very large gap closed slightly, particularly since 1994.

For Hispanics a quite different picture emerges. The Equity Index of median family income for Hispanics dropped sharply, from 73.6 percent of the median income for all families in 1972 to 63.4 percent by 1998. Despite fluctuations, the erosion of the median family income Equity Index for Hispanic families was nearly steady over this 26 year period.

Poverty rate for families with children. The poverty rates for black, Hispanic and non-Hispanic white families with children is shown in the top chart on this page. In 1998 these rates were 9.1 percent for non-Hispanic white families, 30.5 percent for black families, and 28.6 percent for Hispanic families. Between 1974 and 1998 the poverty rate for families with children increased from 7.7 to 9.1 percent, or by 3.0 percent. Among white non-Hispanic families, the poverty rate increased 1.4 percent. Among blacks the rate decreased by 2.5 percent. Among Hispanics the rate increased by 3.4 percent.

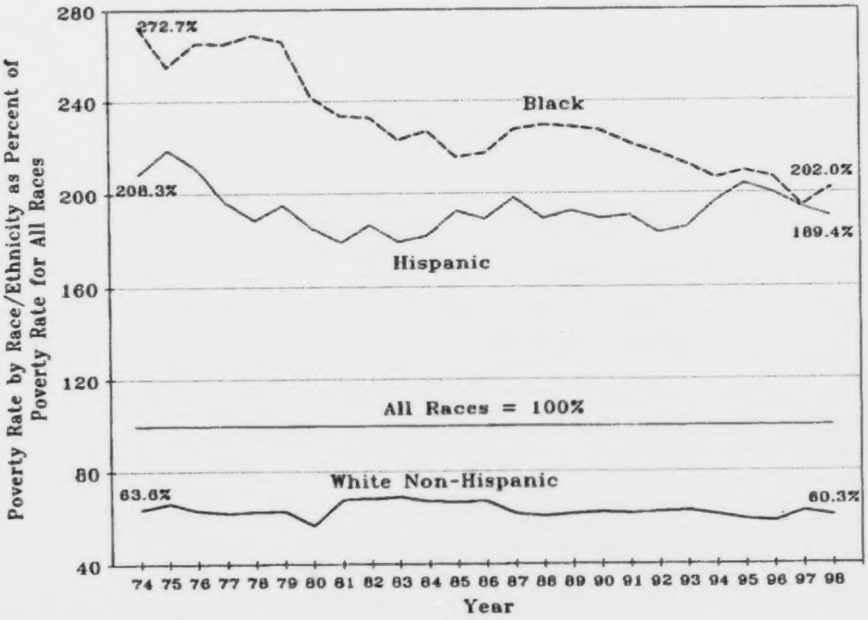
The poverty rate Equity Index is shown in the second chart on this page. The Equity Index for whites declined from 63.6 percent of the rate for the population in 1974 to 60.3 percent by 1998. The poverty rate Equity Index also declined for black and Hispanic families with children. The decline was greatest for blacks, by 70.7 percentage points. For Hispanic families the decline was 18.9

Poverty Rates for Families with Children Under 18 Years by Race/Ethnicity, 1974 to 1998



Source: Census Bureau

Equity Index for Poverty Rates for Families with Children Under 18 Years by Race/Ethnicity 1974 to 1998



Constructed from Census Bureau data

percentage points. By the mid 1990s, the black family poverty rate had nearly reached the Hispanic rate--a condition probably unimaginable back in the 1970s.

Educational Attainment

Just as different racial/ethnic groups have gained or lost ground on economic measures of welfare, so too have these groups gained or lost ground on measures of educational attainment. In fact, the gains in economic welfare appear to be directly linked to these changes in educational attainment over the last several decades. Here we examine three measures of educational attainment over time for the major racial/ethnic groups: high school graduation, college participation and bachelor's degree attainment.

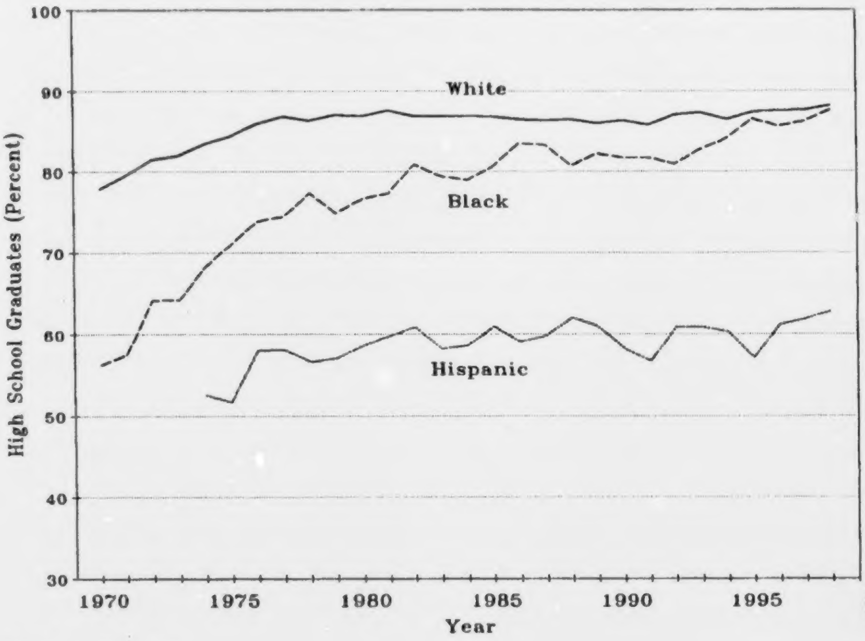
High school graduation. The top chart on this page shows the proportion of the population ages 25 to 29 years that has earned a high school diploma or its GED equivalent over the last three decades. In 1998 88.1 percent of this cohort had attained a high school graduate status. Among whites this was 88.1 percent, among blacks it was 87.6 percent, and among Hispanics it was 62.8 percent.

The Equity Index for high school attainment is the second chart on this page. This chart shows a modest decline for whites (which includes Hispanics in this case) between 1970 and 1998. The EI for whites declined from 103.2 percent of the rate for all races in 1970 to 100 percent by 1998.

By comparison, the Equity Index for blacks shows an enormous gain, from 75.5 percent of the rate for all races in 1070 to 99.4 percent by 1998. For blacks the rate has risen sharply over 30 years to where it now very nearly equals the national rate.

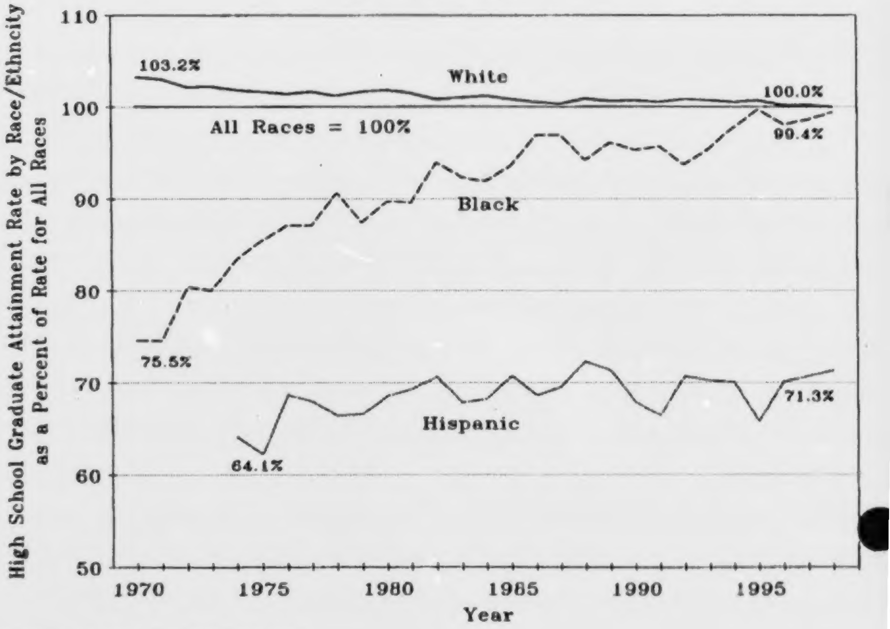
The Equity Index for high school

High School Attainment Rate Among 25 to 29 Year Olds by Race/Ethnicity, 1970 to 1998



Source: Census Bureau

Equity Index for High School Attainment Rates Among 25 to 29 Year Olds, by Race/Ethncicity 1970 to 1998



Constructed from Census Bureau Data

attainment for Hispanics rose between 1974 and about 1982, but has shown virtually no change since then. In 1998 it stands at about 71 percent of the rate for whites and blacks.

College continuation. In 1998 the rate at which high school graduates enrolled in college the following fall was 65.6 percent. By race/ethnicity the rates were 70.6 percent for non-Hispanic whites, 62.1 percent for blacks and 47.5 percent for Hispanics. The rates for each group are shown in the top chart on this page. The rates for blacks and Hispanics have been smoothed by a moving 3-year average to emphasize underlying trends to these data.

Generally rates for all groups have increased. Between 1970 and 1997 the college continuation rate for whites increased by 18.6 percentage points. For blacks the 14.1 percent. Between 1976 and 1998 the rate for Hispanics increased by about 4.5 percentage points.

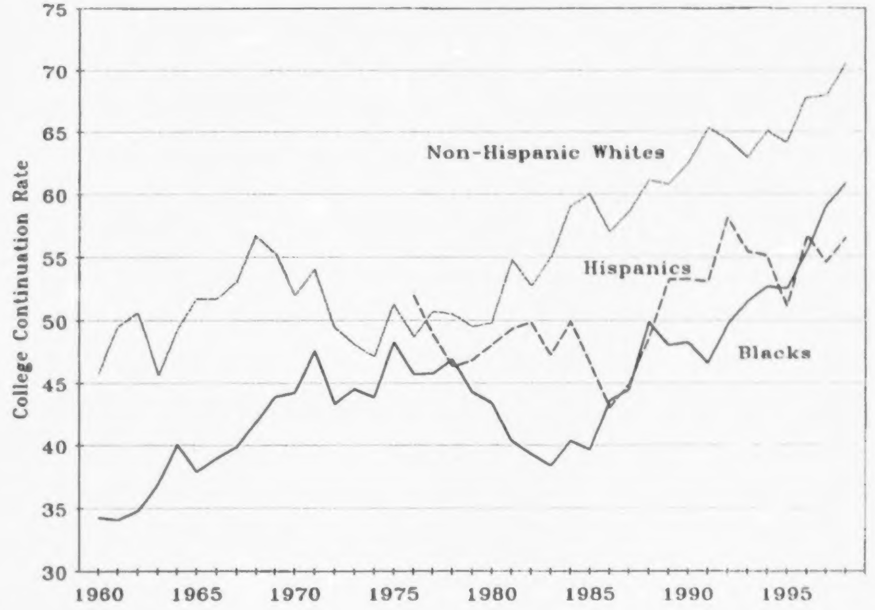
The Equity Index for college continuation rates is the second chart on this page. Expressed as a proportion of the college continuation rate for all races, the rate for whites has generally been greater than 100 percent or above the rate for everyone. Moreover, the EI for whites has tended upward over time, and was the highest on record at 107.6 percent in 1998.

The Equity Index for blacks plunged in the first half of the 1980s, and has gradually worked its way back to the levels reached in the 1970s. For Hispanics the EI has declined from the highest rate in 1976 (104.5 percent of everyone's rate) to the lowest of the three rates by 1998, at 85.1 percent of the rate for all races.

Bachelor's Degree Attainment

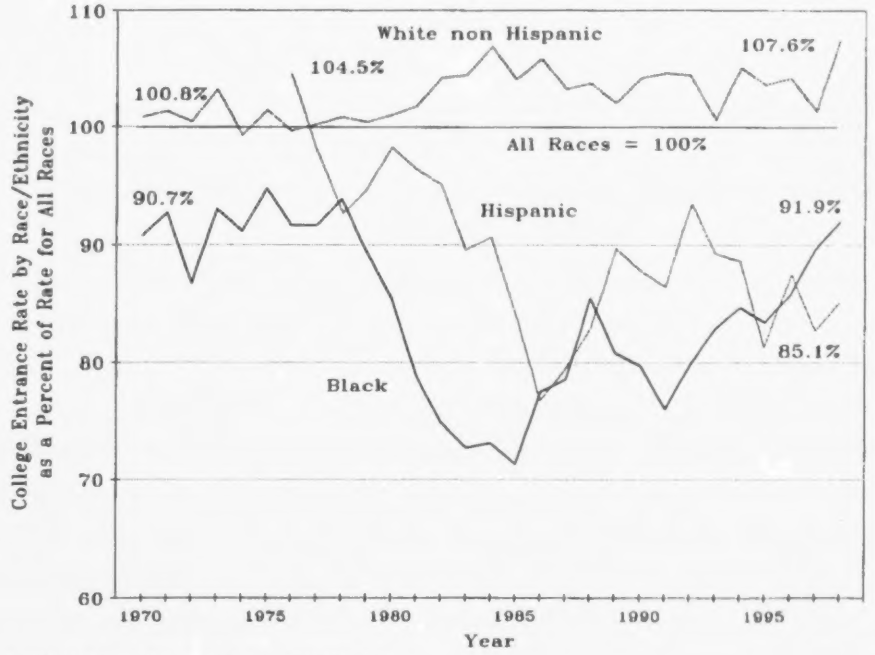
The chart on the next page shows the

College Continuation Rates
for Recent High School Graduates by Race/Ethnicity
1960 to 1998



Source: Bureau of Labor Statistics

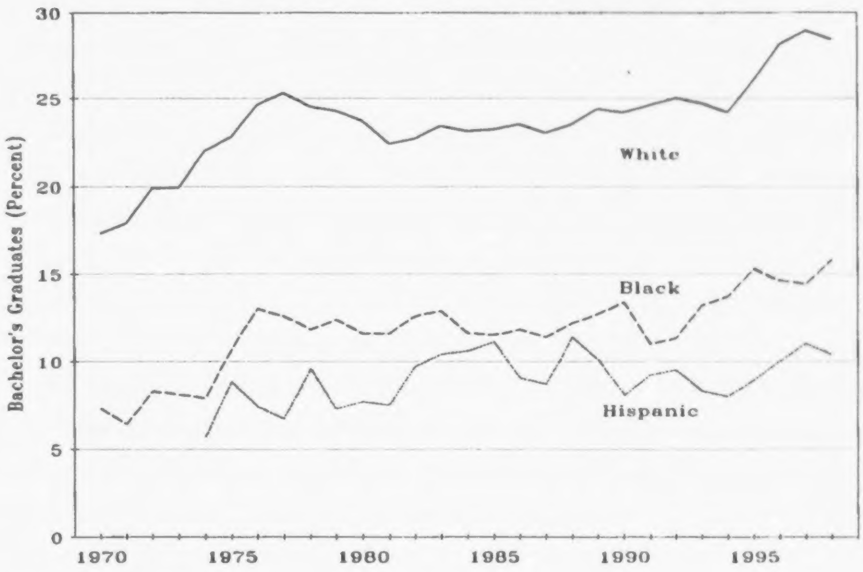
Equity Index for College Entrance Rate by Race/Ethnicity
1970 to 1998



Constructed from Bureau of Labor Statistics data proportion of the population between the ages of 25 and 29 years that has earned a bachelor's degree. In 1998 28.4 percent of the whites, 15.8 percent of the blacks and 10.4 percent of the Hispanics had earned a bachelor's degree by this age.

As our data have consistently shown, a college degree is the key to accessing the highest paying jobs in the labor force. Since the early 1990s all three racial/ethnic groups have made progress towards this goal. Whites are far ahead of blacks and Hispanics in attaining bachelor's degree status. But some groups have laid stronger foundations for further progress than have others. Whites and blacks have notably higher high school graduation and college continuation rates than do Hispanics. Hispanics have a notably weaker foundation for further progress than do other groups.

Bachelor's Degree Attainment Rate Among 25 to 29 Year Olds by Race/Ethnicity, 1970 to 1998



Source: Census Bureau

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"I worked my way through college. Students should too."

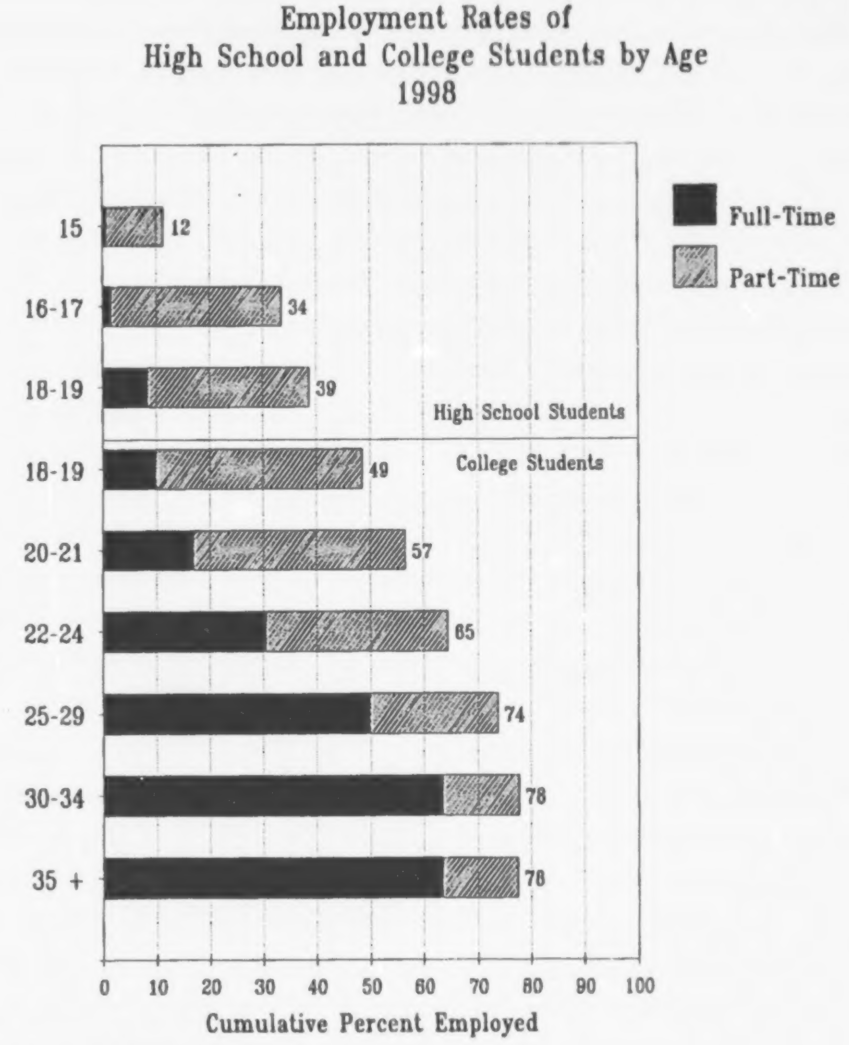
Student Employment in High School and College 1987 to 1998

The years between ages of 15 and the mid 20's form a transition in life between total parental dependence and adult independence. Into these years are crammed the final years of formal education and the transition into adult careers and employment.

These years are crowded by these commitments. In 1998:
- 1,810,000 full-time students were also employed full-time.
- Out of 12,643,000 full-time high school students, 365,000 were also working full-time. This was 2.9 percent of high school enrollment.
- Out of 10,188,000 full-time college students, 1,446,000 or 14.2 percent were also employed full-time.
- Out of 5,359,000 part-time college students, 3,785,000 or about 71 percent were employed full-time.

To say that education and employment overlap and conflict would be an understatement.

Moreover, the overlaps and conflicts appear to be growing, particularly for college students between the ages of 18 and 21 years--typically full-time undergraduates. Over the last decade the proportion of these students reporting employment has grown notably faster than for any other age group during this time period. And most of that employment growth has been in full-time employment.


Employment Rates of
High School and College Students by Age
1998

Source: Census Bureau

Young people appear to be in a hurry to grow up. Emancipation from parental control may be sought by children and parents alike. Economic freedom requires income, and in this country we are expected to earn our own bed and bread.

But also the growth in college attendance costs over the last two decades at a rate much faster than family incomes and grant aid has shifted the burden of paying for college from parents and taxpayers to students. The two financing choices left for students are to pay for their higher educations now (though employment) or to pay these costs later (through educational loans). Available data suggest students are choosing to do both--work more and borrow more.

In this analysis we explore trends and patterns in concurrent high school and college enrollment and employment. We begin in high school, at age 15, when laws governing child labor begin to relax, and follow the data through adulthood. We look at employment trends over time, at patterns between the genders and at patterns across racial/ethnic groups. And we look at employment by enrollment status and where it occurs--on-campus or off.

Finally, we address the now-famous statement made years ago by the State of Washington legislator who lectured state officials and college students by saying:

> *I worked my way through college. Students should too.*

These data strongly suggest students are trying hard, perhaps too hard, to work and study at the same time. For important public policy reasons like loss of purchasing power of the minimum wage and the higher education cost shift from parents and taxpayers to students, there simply aren't enough hours in the week to finance college attendance costs only with earnings from employment.

The Data

The data analyzed and reported here come from two main sources.

The first source is the Census Bureau's annual report on school enrollments based on data collected in the October Current Population Survey. These data are published in:

Martinez, G. M., and Curry, A. E. (September 1999.) "School Enrollment-Social and Economic Characteristics of Students (Update)." Current Population Reports. P20-521. Washington, DC: U.S. Census Bureau.

These reports are now mainly available for downloading from the Census Bureau's website at:
http://www.census.gov

The second data source used in this study is the annual UCLA Freshman Survey. For nearly 25 years this survey has asked questions of first-time, full-time beginning college freshmen about their employment in the senior year of high school, and their plans for part-time and full-time employment while in college.

Sax, L.J., Astin, A.W., Korn, W.S., and Mahoney, K.M. (1999). *The American College Freshman: National Norms for Fall 1999.* Los Angeles: Higher Education Research Institute, UCLA.

This report is not available on-line, but may be purchased from the Higher Education Research Institute at 310/825-1925.

The data from these two sources are generally consistent, especially regarding trends, and thus tell consistent stories.

Working and Studying

Employment among students begins early in life--we tend to think of adult roles centered around work and as parents we prepare our children for these adult roles by introducing them to the world of work early.

High school. In October of 1998, of the 12,643,000 students enrolled in

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Mission Statement

This research letter is founded on two fundamental beliefs. First, sound public social policy requires accurate, current, independent, and focused information on the human condition. Second, education is essential to the development of human potential and resources for both private and public benefit. Therefore, the purpose of this research letter is to inform those who formulate, fund, and administer public policy and programs about the condition of and influences that affect postsecondary education opportunity for all Americans.

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high schools in the U.S., 365,000 students were employed full-time and 3,169,000 were employed part-time.

As shown in the chart on page 1, by age 15 11.5 percent of high school students are working--0.4 percent full-time and 11.1 percent part-time. By age 16-17, 33.6 percent of high school students are working--1.4 percent full-time and 32.2 percent part-time. By age 18-19, for those still enrolled in high school, 38.9 percent are also employed--8.3 percent full-time and 30.6 percent part-time.

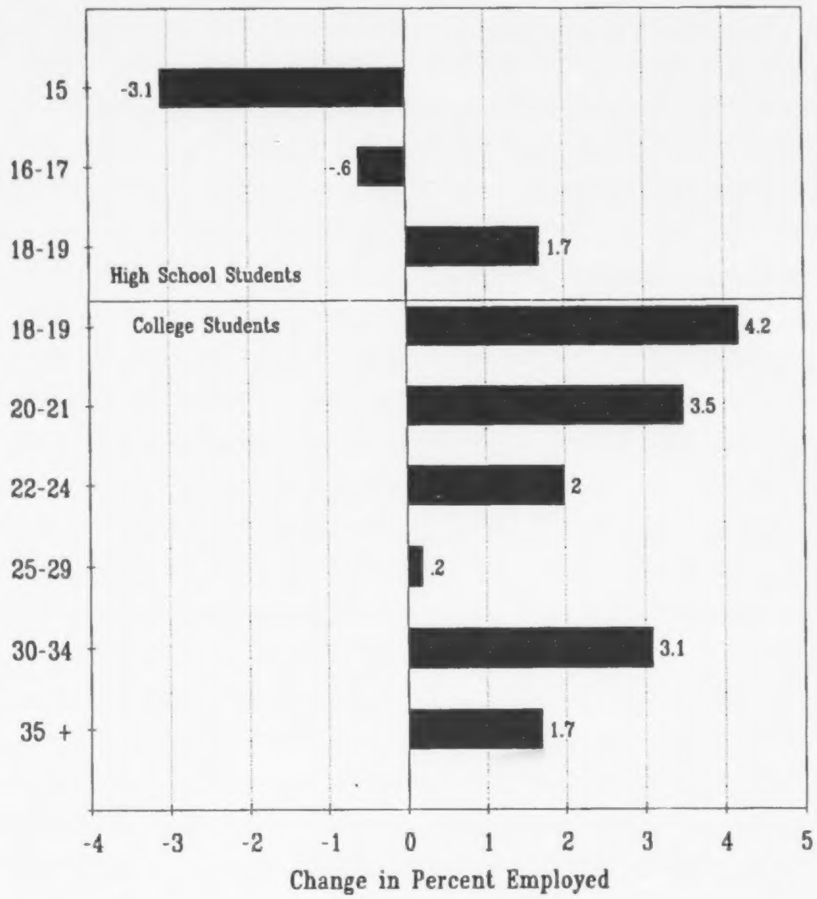
Since 1987, when the Census Bureau began reporting these data, the employment rate among high school students has declined slightly. Among 15 year old high school students, the employment rate has declined from a peak of 15.2 percent in 1989 to lows of 9.3 percent in 1993 and 1997. By October of 1998 it stood at 11.5 percent.

Among 16-17 year old high school students, the employment rate has declined from a peak of 37.1 percent in 1989 to a low of 28.7 percent in 1992, and by 1998 stood at 33.6 percent. Only among 18-19 year old high school students has the employment rate moved up slightly, from 37.2 percent in 1987 to 38.9 percent by 1998.

College. In October of 1998 there were 15,546,000 students enrolled in college in the U.S. Of these, 10,188,000 were enrolled full-time, and 5,359,000 were enrolled part-time.

Among the full-time college students, 1,446,000 or 14.2 percent were employed full-time. An additional 3,817,000 or 37.5 percent were employed part-time. Thus over half--51.7 percent of all full-time college students were also working.

Change in Employment Rates of High School and College Students by Age Between 1987 and 1998



Source: Census Bureau

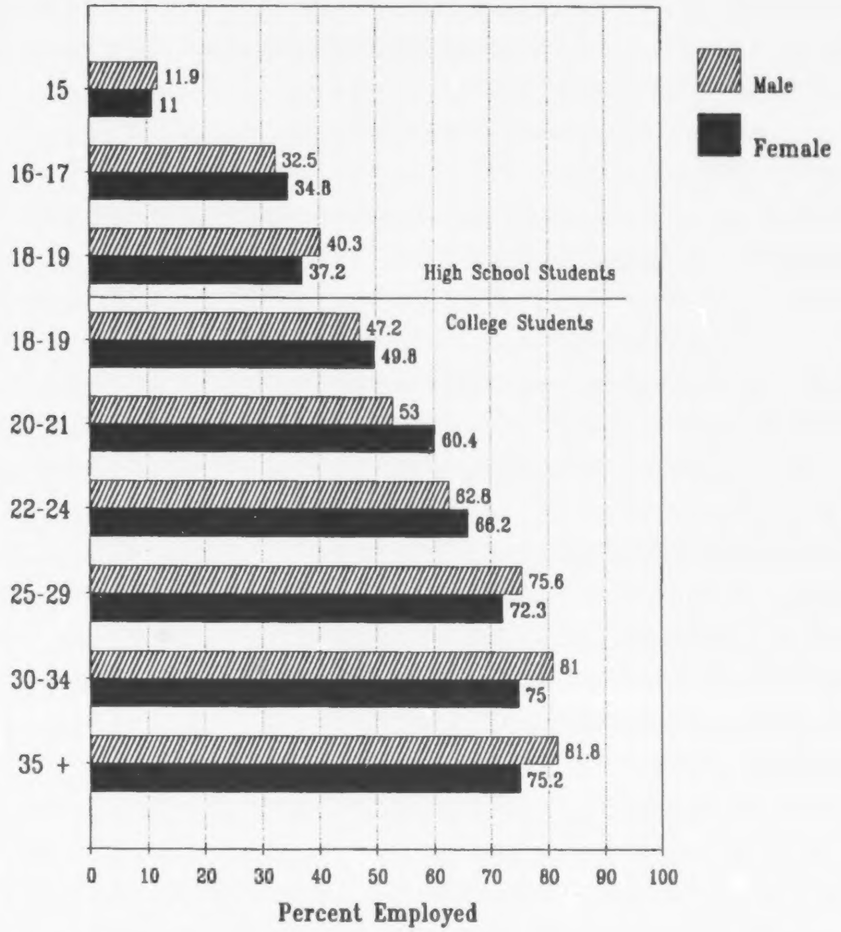
Among the part-time college students, 3,785,000 or 70.6 percent were employed full-time. An additional 856,000 or 16.0 percent were working part-time. Thus 86.6 percent of all part-time college students were also working, mainly full-time.

By age, employment rates among college students increased with age, continuing the employment rate growth started in high school at around age 15. By age 18-19 years, 48.7 percent were working while studying. By 20-21 years, 56.8 percent were working. By 22 to 24 years, 64.5 percent were employed. And by 25 to 29, 73.9 percent had jobs. Beyond age 30 more than three-quarters of college students were employed.

Between 1987 and 1998--the span of Census Bureau data--the employment rate among college students increased (by all measures). This increase was quite steady, compared to the drop in the employment rate of high school students during the economic recession of the early 1990s.

The largest growth in the employment rate among college students occurred

Employment Rates by Gender of
High School and College Students by Age
1998



in the 18 to 19 year old age range (by 4.2 percent, from 44.5 to 48.7 percent), followed by the second largest growth in the 20 to 21 year old age group by 3.5 percent, from 53.3 to 56.8 percent). These are the undergraduate college years where enrollment is most likely to be full-time.

Gender

As shown in the chart on this page, employment rates among male and female high school and college students are quite similar at each age level.

Among high school students, 27.9 percent of the males and 28.0 percent of the females were also employed. Among the boys who were working, 11.0 percent were working full-time, compared to 9.6 percent of the girls.

Unlike high school, college students can be enrolled either full- or part-time. In October of 1998 65.5 percent of all college students were enrolled full-time. By gender these proportions were 67.6 percent for males and 63.9 percent for females. By age the proportion of college enrollment that was full-time declined from 89.0 percent among 18 to 19 year olds, to 26.6 percent for those 35 and over.

Among male college students, 62.6 percent also worked, compared to 64.5 percent of females. Among full-time college students, the employment rate was 49.9 percent for males compared to 53.1 percent for females. Among part-time college students, the employment rate was 89.0 percent for males and 84.9 percent for females.

Among college students, women are slightly more likely to be employed while enrolled between the ages of 18 and 24 years. Thereafter, however, male college students are more likely to be employed than are females, and this difference increases with age.

Race/Ethnicity

There are four distinct racial/ethnic groups of high school and college students reported by the Census Bureau. They totaled 28,190,000 students in October 1998, and were broken down as follows:

- white, non-Hispanic, constituting 68 percent of the population of high school and college students
- black, non-Hispanic, constituting 14.5 percent of the student population
- Asian and Pacific Islander, non-Hispanic, constituting 5.4 percent of the student population, and
- Hispanic, comprising 10.8 percent of the student population

This includes 98.6 percent of the population. The Hispanic population may be of any of the three racial groups, but has been reported separately by the Census Bureau for the last twenty-five years.

In October of 1998, the employment rates among high school students were:

• white, non-Hispanic	33.9%
• black, non-Hispanic	17.8%

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• Asian, non-Hispanic	12.2%
• Hispanic	17.3%

Note: These data should not be interpreted as student *willingness* to work. Rather these rates are properly interpreted as the intersection between demand for and supply of student employment opportunities. That is, students must want to work and jobs must be available to employ them.

In October of 1998 the employment rates among college students were:

• white, non-Hispanic	66.6%
• black, non-Hispanic	61.3%
• Asian, non-Hispanic	42.6%
• Hispanic	62.1%

Clearly, the employment rates of whites are highest for both high school and college students. Also, the employment rates for Asians are consistently the lowest, and by a substantial margin. Blacks and Hispanics fall in between and are similar to each other at both the high school and college levels.

Generally these employment patterns persist through all age groups. White students get a jump start on employment over the other groups in high school and hold this lead through most subsequent age groups (except 30 to 34 where black students are most likely to be working). Similarly at all age levels Asian high school and college students are least likely to be employed. Usually this is by a wide margin.

Examining the enrollment status of students helps illustrate some of the employment/enrollment complexity. The proportion of college students enrolled full-time by race/ethnicity in October of 1998 was as follows:

white, non-Hispanic	65.2%
black, non-Hispanic	63.7%
Asian, non-Hispanic	81.1%
Hispanic	58.8%

Clearly Asian college students are most likely to be enrolled full-time, and Hispanic students are least likely to be full-time college students.

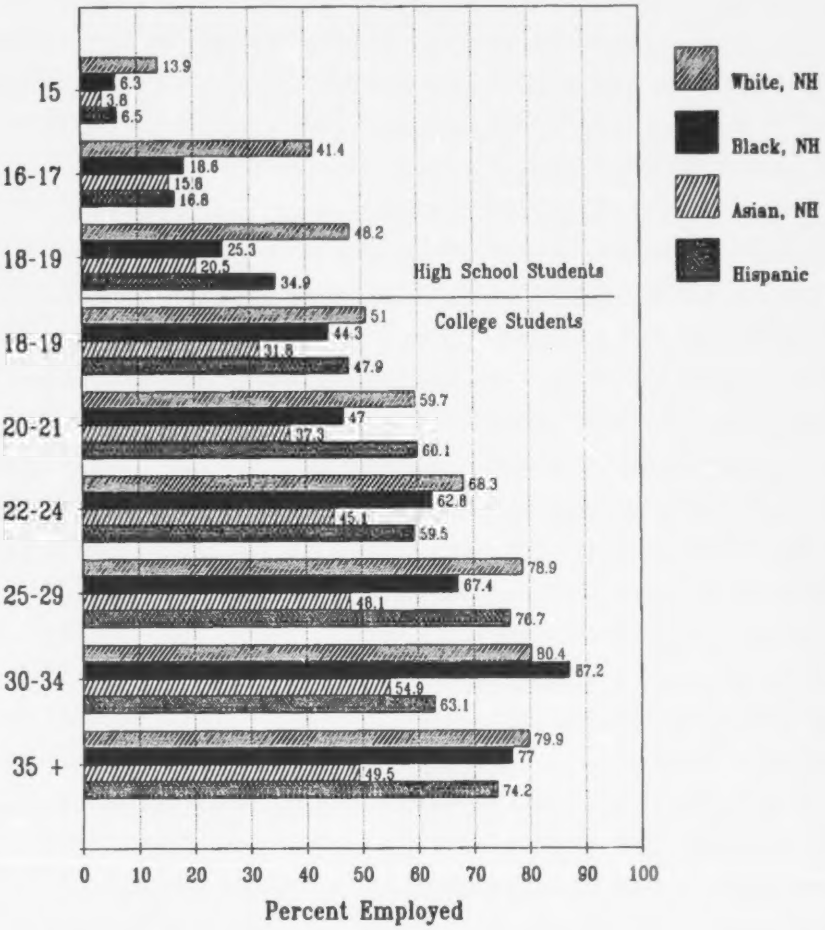
Controlling for age, the same patterns hold: Asians are far more likely to be enrolled in college full-time than are any of the other three groups. Moreover, at all age groups through 34 years, Hispanics are by far least likely to be enrolled in college full-time.

This attendance status insight helps explain the differences in employment rates among college students by age and race/ethnicity shown in the chart on this page.

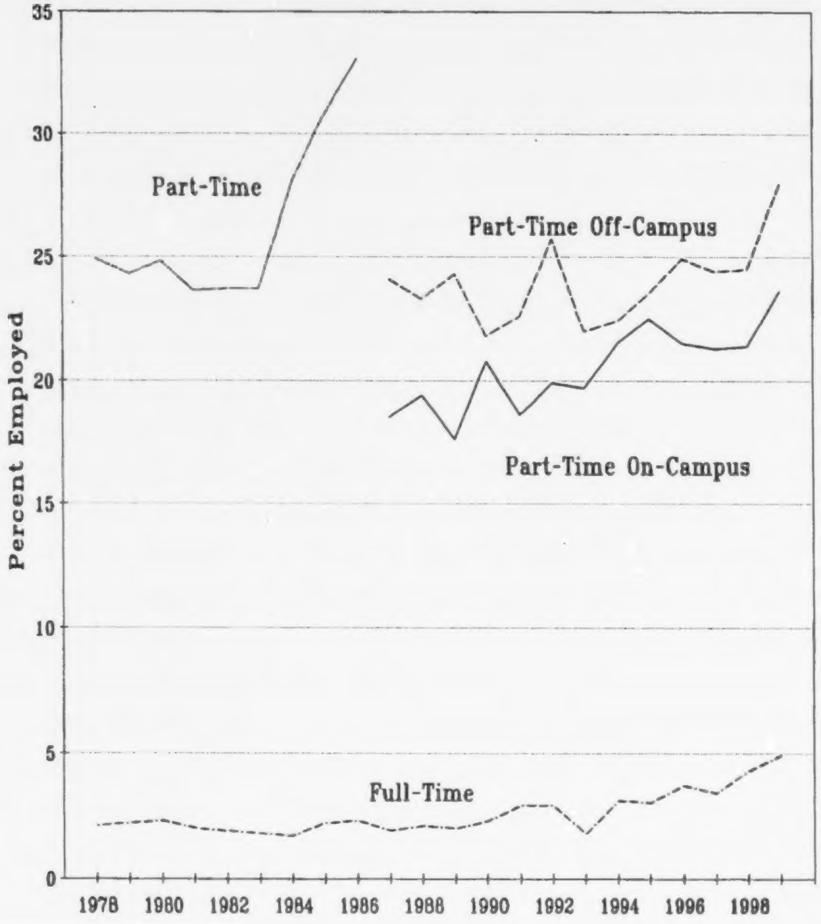
- Those most likely to be enrolled full-time--Asians--are least likely to be employed while attending college.
- At most age intervals, whites and Hispanics are most likely to be employed while enrolled, and Hispanics in particular are least likely to be enrolled full-time (through age 34).

These data suggest significant marginal differences in the ways different populations wrestle with the trade-offs

Employment Rates by Race/Ethnicity of High School and College Students by Age 1998



Full-Time Freshmen Working While Attending College
1978 to 1999



Source: UCLA Freshman Surveys

between enrollment and employment. Asians are most likely to pursue college enrollment full-time, at the expense of employment income and experience. Hispanics are most likely to trade-off full-time college enrollment for employment. Blacks and whites are somewhere between these two groups in managing the trade-offs.

Who works hardest at concurrent enrollment and employment in college? To answer this we have looked at the proportion of each racial/ethnic group both enrolled full-time in college and working full-time.

- Blacks are the most likely to be doing both full-time: 13.3 percent of all black college students are both enrolled and employed full-time.
- For whites and Hispanics, the proportions are 8.8 and 8.7 respectively.
- For Asians just 6.8 percent report concurrent full-time enrollment and employment.
- By age group, Blacks hold the lead at all levels except age 18 to 19 years, where Hispanics are most likely to be working and studying full-time.

Trends in High School Employment

The UCLA Freshman Survey provides a second source of useful information regarding employment of high school and college students. This survey is limited to first-time, full-time college enrollments. These are often students pursuing their higher educations directly following high school graduation.

In the fall of 1999, the proportion of these first-time, full-time college freshmen reporting that worked 75.7 percent. Between 1986 and 1999 this proportion has fluctuated between 71.2 percent (1992) and 76.1 percent (1987).

While there is only a modest upward trend in the proportion of college freshmen reporting that they had worked during the previous year, the proportion reporting that they had worked 6 or more hours per week had more clearly increased, from 62.1 to 64.5 percent between 1986 and 1999. There was also a modest increase in the proportion working more than 20 hours per week, from 21 to 23.4 percent during this period.

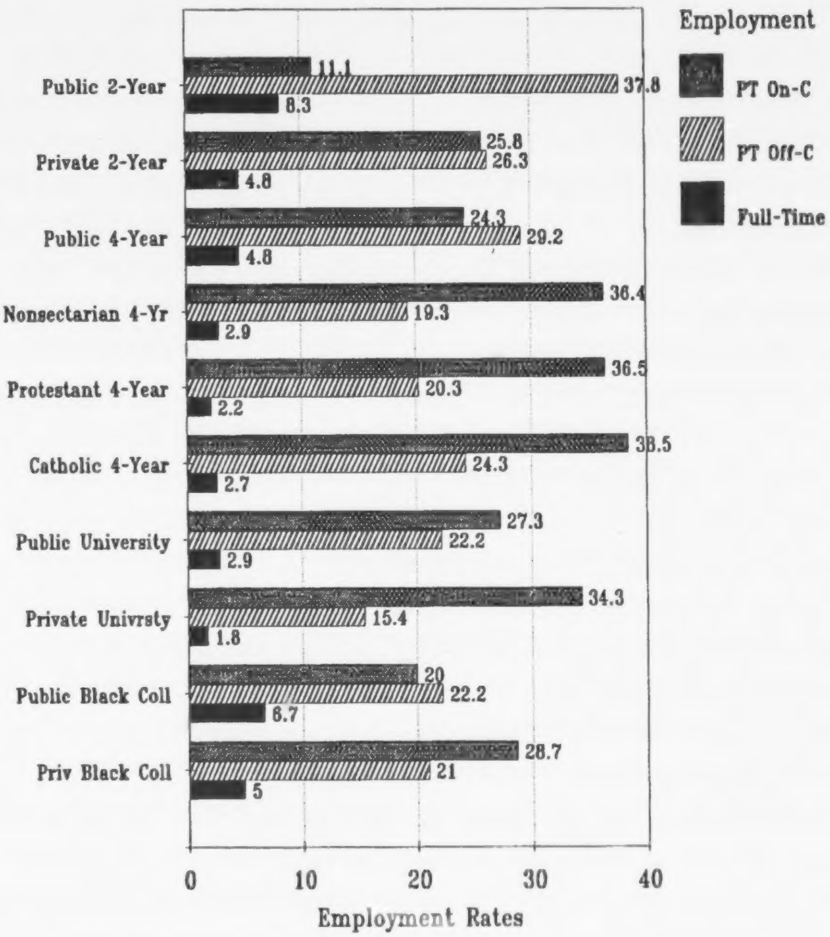
Trends in Campus Employment

The chart on this page shows the proportion of college freshmen who think that they will get a job while in college. The question on part-time employment was changed 1987 to gather additional data on off-campus and on-campus part-time employment.

The Freshman Survey data indicate that students increasingly expect to work while attending college:

- Between 1987 and 1999 the proportion of freshmen expecting to work part-time off-campus has increased from 18.5 to 23.6 percent.
- The proportion of freshmen

Full-Time Freshmen Employment Rates by Institutional Type and Control, 1999



Source: 1999 UCLA Freshman Survey

expecting to work part-time on-campus has increased from 24.1 to 28.0 percent.

- Since 1978 the proportion of full-time freshmen expecting to work full-time while in college has increased from 2.1 to 4.9 percent.

In all cases, the 1999 data are at record high employment expectation levels.

Employment patterns of college freshmen vary markedly by institutional type and control as shown in the chart on this page. The standout that differs from all other institutions is public two-year colleges.

- Here the proportion of freshmen enrolled part-time off-campus was 37.8 percent, the highest of any of the institutional types.
- Similarly, freshmen at public two-year colleges were more likely to be enrolled full-time--8.3 percent--than were students at any other type of institution.
- The students most likely to be employed part-time on-campus were freshmen at Catholic 4-year colleges.

Different institutional types appear when students least likely to be employed are identified:

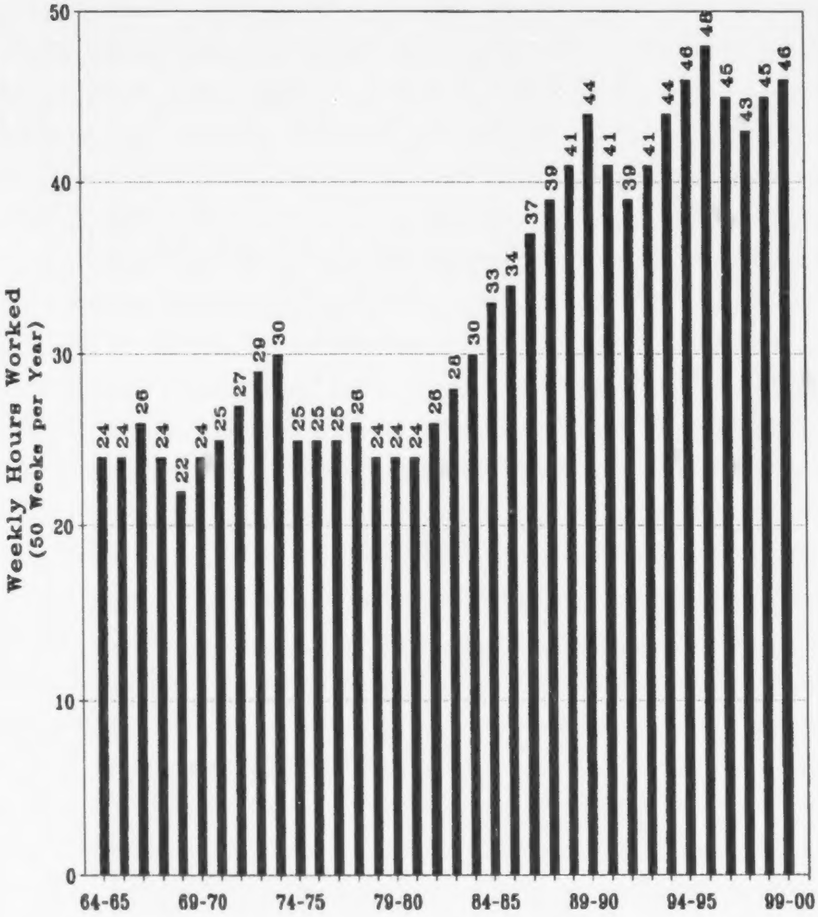
- Freshmen in public two-year colleges are least likely to be employed on-campus at 11.1 percent.
- Freshmen at private universities are least likely to be employed part-time off-campus, at 15.4 percent,
- Freshmen at private universities are also least likely to be employed full-time, at 1.8 percent.

I worked my way through college. You should too.

More than a decade ago, we are told, a State of Washington legislator urged students to work their way through college as he had. This led to a state study of how many hours per week a student would have to work to be able to pay college attendance expenses. We present here our estimate of the student effort required to pay college attendance costs as they are incurred.

We make some assumptions about costs and available wages to make this estimate. First we assume that the student works at minimum wage. Second we assume that only Social Security taxes are deducted from those wages. Third we assume that the student pays national average college attendance costs, which we have estimated from College Board and National Center for Education Statistics data.

For example, the national average cost-of-attendance for 1999-2000 at a public 4-year institution is approximately $11,019. To cover this expenditure at the current minimum wage of $5.15 per hour (which is $4.76 after OASDI taxes are deducted), a students would have to work 2317 hours. Working 52 weeks per year, the student would have to work 46 hours per week every week to cover his or her costs of attendance from minimum wage earnings.



Weekly Hours Worked at Minimum Wage
to Finance Public 4-Year College Attendance Costs
1964-65 to 1999-00

If we replicate this calculation for an average cost private four-year institution, the student would have to work 101 hours per week for 52 weeks per year to cover the national average cost of attendance of $23,943.

Assuming that the Washington state legislator had earned his way through college many years earlier--say 1964-65 (because we have the data for that year)--he could have done what he said he did. In 1964-65, a student at an average cost-of-attendance public 4-year institution would have had to work 24 hours per week at minimum wage ($1.25 per hour/$1.20 after OASDI) for 52 weeks to earn the $1907 annual cost-of-attendance for that year. In fact through the 1980-81 academic year the students would still have had to work just 24 hours per week for 52 weeks to pay full-time college attendance costs for the nine-month academic year.

However, between 1980-81 and 1999-2000, the number of required hours worked per week to pay college attendance costs at a public 4-year institution nearly doubled, from 24 to 46 hours per week. There are several important reasons why this increase occurred. One important reason is the loss of the purchasing power of the minimum wage. Between 1980 and 1999 the purchasing power of the minimum wages declined by 18 percent in constant dollars. Another reason is the increase in the OASDI tax rate from 6.13 to 7.65 percent.

But the most important reason, by far, has been the growth in institutional charges faster than inflation and family income. As the experienced state legislator knows full well, the diversion of state funding for higher education to other state budget priorities like prisons and Medicaid has caused public institutional charges to students to be increased to offset the loss of state financial support since 1980.

The increase in the numbers of required hours per week to finance an average 4-year cost-of-attendance budget has been even more dramatic in private 4-year institutions. As recently as the 1980-81 academic year a student would have had to work *only* 43 hours per week. By 1999-2000 the students would have had to work 101 hours per week 52 weeks per year, to finance average attendance costs out of current earnings.

Summary and Discussion

There are very clear reasons why students are both borrowing more and working more to finance their higher educations: it costs more than it used to. The costs of higher education have not so much increased over the last twenty years as they have been shifted from taxpayers to students.

Generally our data describe the transition of children from family dependency to adult independence. Students start formal employment about age 15. Then, depending on how long they pursue formal academic studies in high school and college, more start working and workloads increase gradually to full-time, crowding out further full-time commitment to education. College enrollment defers the commitment to full-time employment. By age 25 to 29 years about half of all college students are working full-time.

In October of 1998, about 3 percent of high school students were already working full-time. About 14 percent of full-time college students were also working full-time. And 71 percent of part-time college students were employed full-time.

It cannot be said that college students do not want to work. In October of 1998 nearly 64 percent of them were working while studying. In 1990 about 61 percent were employed so the rate of employed college students has increased during the 1990s.

But the question of the mix of concurrent enrollment and employment needs to be raised. Previous research on college student employment suggests that modest hours (12 or less per week), on-campus employment (that fosters social integration), and employment related to academic goals (that fosters academic integration) can be helpful to students pursuing college degrees.

Part of the interpretive question about these data revolves around these two questions:

- Are these students who are also working?
- Or are these employees who are also studying?

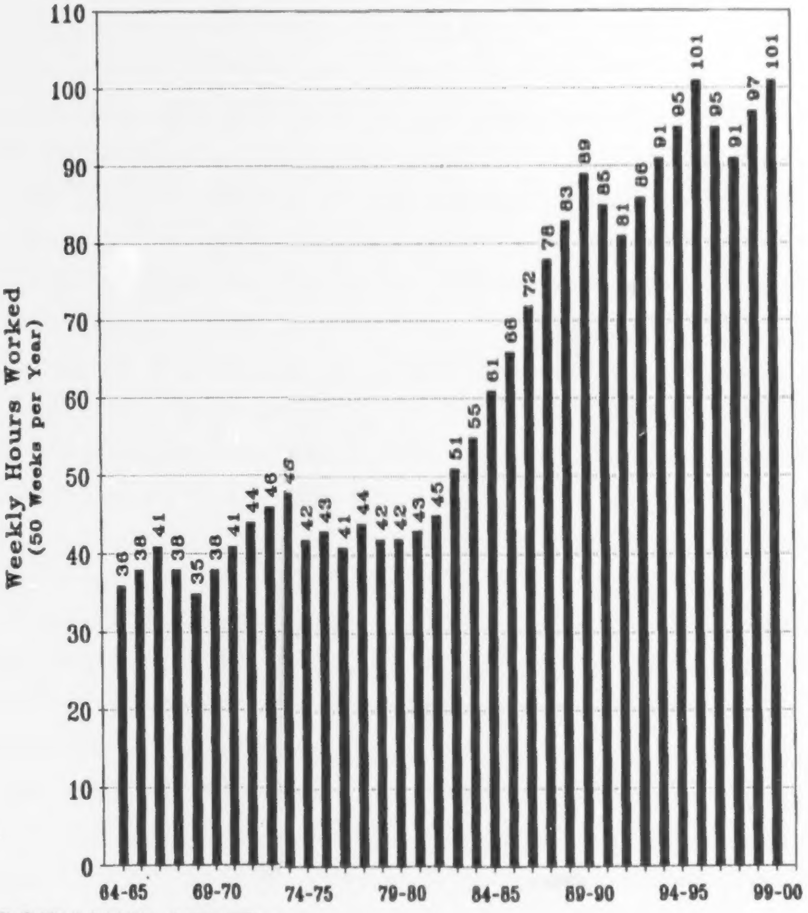
Our data strongly suggest that this question is answered by age. Younger college students--between 18 and 21 years--are far more likely to be studying full-time and working part-time. Older college students--in their 30s for example--are far more likely to be full-time employees and studying part-time. Between the ages of about 22 and 30, the shift from primarily students to primarily employees occurs suddenly for individuals but gradually for groups.

What the Census Bureau and UCLA data have reported as employment of students, probably too often exceeds these student employment guidelines by a wide margin.

- Among 16-17 year old high school students, 1.4 percent are working full-time. By age 18-19, 8.3 percent are working full-time. And high school enrollment is generally treated as its own full-time commitment.
- In the undergraduate years of 18-19 years, 9.7 percent of students are working full-time, and this rises to 16.8 percent by ages 20 to 21.
- By ages 22 to 24, when many undergraduates are completing their bachelor's degrees, full-time employment rises to 30.3 percent.

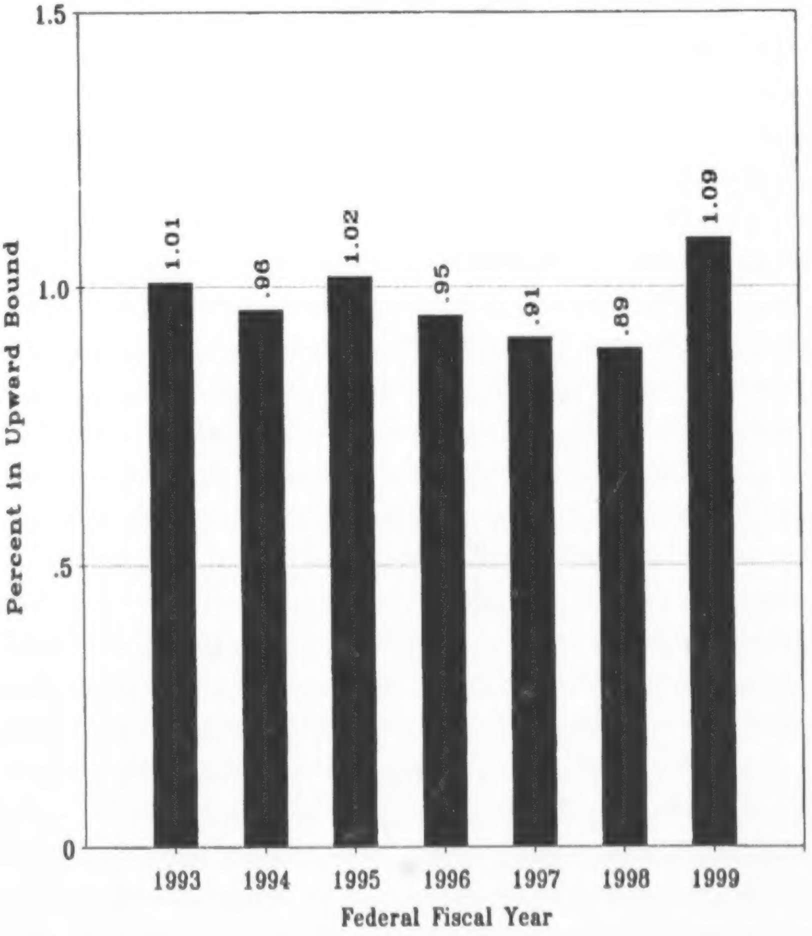
The delicate question of balance between enrollment and employment lingers. Students want to work and work can be good for their development. But in excess or in forms that conflict with educational progress work can prevent students from maximizing their educational opportunities, and that is not good.

Weekly Hours Worked at Minimum Wage
to Finance Private 4-Year College Attendance Costs
1964-65 to 1999-00



TRIO Market Penetration

Low Income High School Age Students Enrolled in Upward Bound Programs 1993 to 1999



Federal TRIO programs are outreach and supportive services programs targeted on students from low income, first-generation families. They are authorized under Title IV of the Higher Education Act of 1965, right along side the federal student financial aid programs. The five federal TRIO programs are:

- Upward Bound
- Talent Search
- Educational Opportunity Centers
- Student Support Services
- McNair Postbaccalaureate Achievement Program

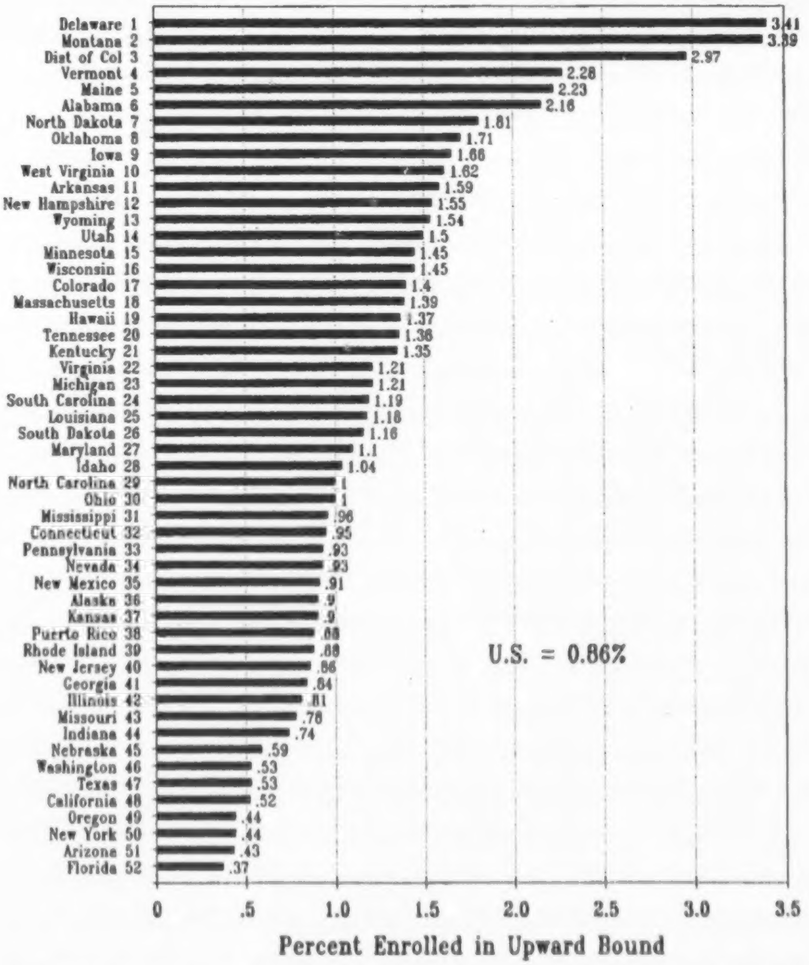
The juxtaposition of TRIO programs with student financial aid in Title IV is no coincidence. From the inception of its commitment to helping students from low income families to finance their higher educations in 1965, Congress recognized that students from low income, first generation families often needed more than financial help to attend college. Thus Congress created pre-college outreach programs to identify and prepare students for college. Once enrolled in college, Congress created two supportive services programs to assist students with academic and social issues geared toward successful graduation.

For many years we have heard that federal TRIO only served about five percent or so of the eligible low income, first-generation population. We were never able to identify the source for this estimate. And we were somewhat confused because each of the five TRIO programs serves a largely distinct population. Thus a single aggregate number seemed implausible to us. So we set out to derive our own estimates.

What we report here are our best estimates of the potential markets for each of the TRIO programs and what proportion of these markets are actually reached with TRIO program services. We estimate this market penetration or service reach both over time and across states.

Our estimates are imperfect because the data needed for more precise estimates are not available. We rely primarily on various low family income measures such as free/reduced price school lunch enrollments and Pell Grant recipient data to identify low income populations over time and across the states. We do not have data on parental educational attainment, which is also a TRIO program eligibility requirement. However, since income and educational attainment are so very highly correlated, this omission is not fatal to our estimates. Low family income is probably an adequate proxy for a more complete eligibility qualification.

Upward Bound Market Coverage by State
1998



The following analyses are limited to four of the five TRIO programs. We lack data on which to calculate Educational Opportunity Center market penetration in a manner similar to that for the other four programs. If and when we figure out how to estimate EOC market penetration, we will report that here.

For more detail on federal TRIO programs go to:
http://www.ed.gov/offices/OPE/HEP/TRIO/
The TRIO National Clearinghouse can be accessed through:
http://www.trioprograms.org/clearinghouse

Upward Bound

The Upward Bound program was created in 1964 through the *Economic Opportunity Act of 1964* as a part of President Johnson's War on Poverty. Its goal "is to increase the rate at which participants complete secondary education, enroll in and graduate from institutions of postsecondary education."

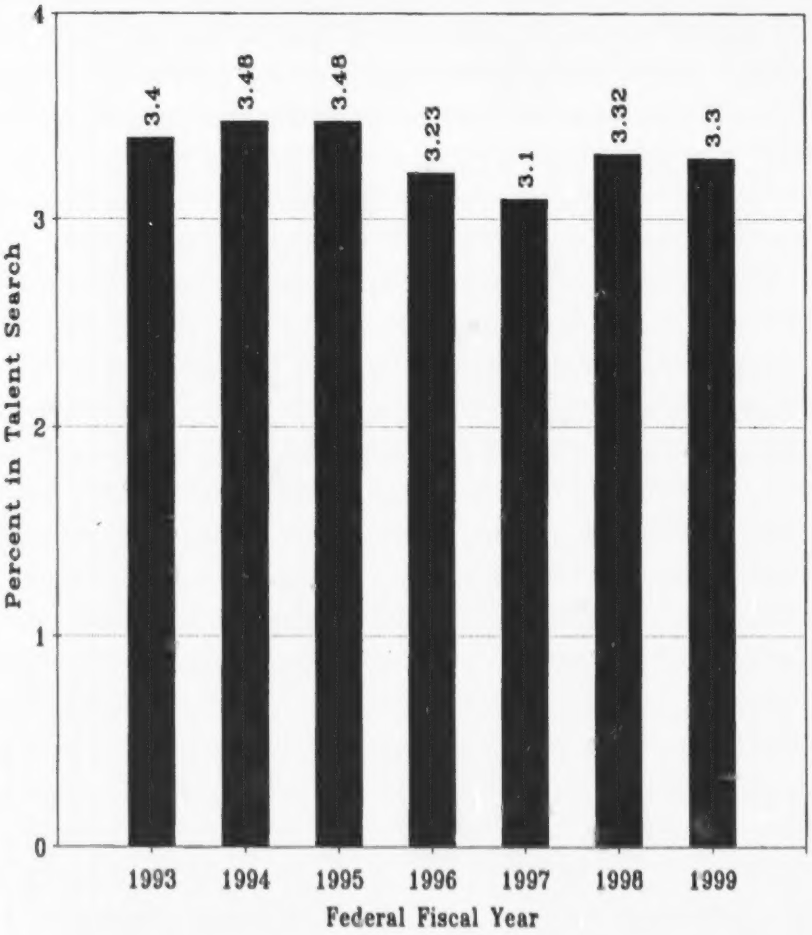
The program is available to high school students--9th through 12th grades--from low income families where neither parent has graduated from college. All Upward Bound programs must provide instruction in math, laboratory science, composition, literature and foreign language. Other student services may include: instruction in reading, writing, study skills and other subjects necessary for success in education beyond high school; academic and financial counseling and workshops; exposure to academic programs and cultural events; tutorial services; mentoring programs; information on postsecondary education opportunities; assistance in completing college entrance and financial aid applications; assistance in preparing for college entrance exams; and work-study to expose participants to careers requiring a postsecondary degree.

For FY1999 $220,500,000 was awarded to 772 programs serving 53,000 students. On average a program received $285,000 to serve 69 students, or $4164 per student participant.

To calculate the proportion of eligible students reached by Upward Bound programs, we divide the number of Upward Bound participants by the number of low income students in high school. The number of low income students in high school is calculated by multiplying the number of public high school students enrolled in grades 9 to 12 by the proportion of all K-12 students approved for the free/reduced-price school lunch program.

For 1998-99 there were 45,602 students in Upward Bound programs. The number of low income high school students was estimated at 5,327,690 students. Thus, Upward Bound programming reached 0.86 percent of the low income population.

The proportion of low income high



Low Income 6th to 12th Grade Students
Enrolled in Talent Search Programs
1993 to 1999

school students reached by Upward Bound has ranged between 0.91 and 1.09 percent between 1993-94 and 1999-00, as shown in the chart on page 10. Across the states plus Washington, DC and Puerto Rico, the proportion of low income high school students enrolled in Upward Bound ranges from 0.37 percent in Florida to 3.41 percent in Delaware, as shown in the chart on page 11.

Talent Search

The second TRIO program was Talent Search, created by the Higher Education Act of 1965. The program goal is "to increase the number of youth from disadvantaged backgrounds who complete high school and enroll in the postsecondary education institution of their choice." It works toward this goal through academic, career and financial counseling services.

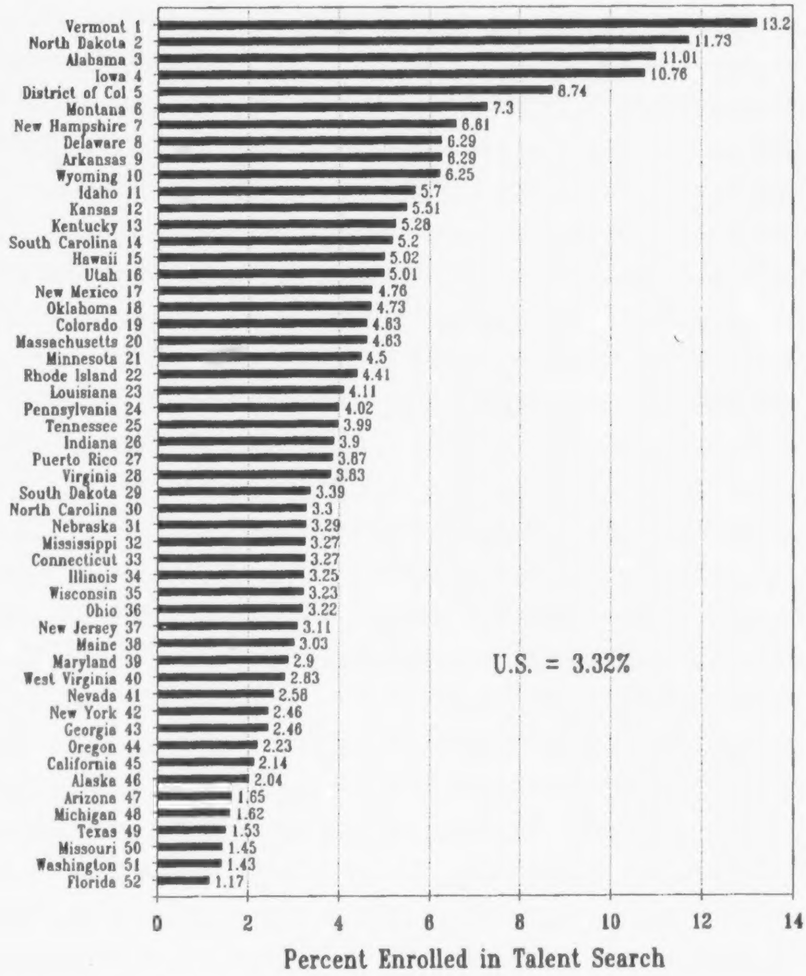
Talent Search program services are available to students between the ages of 11 and 27, and must have completed the fifth grade. At least two-thirds of the students in any given program must be both low-income and first-generation. Talent Search programs may be sponsored by colleges and universities, public and private organizations, and sometimes secondary schools.

Talent Search program services include: academic, financial, career or personal counseling including advice and assistance on entry and re-entry to secondary and postsecondary programs; career exploration and aptitude assessment; tutorial services; information on postsecondary education; exposure to college campuses; information on student financial assistance; assistance in completing college admissions and financial aid applications; assistance in preparing for college entrance exams; mentoring programs; special activities for sixth, seventh and eighth graders; and workshops for the families of participants.

In 1999 $98,451,000 was awarded to 361 programs enrolling 323,541 students, with an average program award of $272,700. Talent Search programs serve an average of 896 participants.

In 1999-2000, Talent Search reached 323,541 low family income students in grades 6 to 12, out of an estimated 9,803,432 low income students in these grades. (Note: Talent Search also serves older high school dropouts up to age 27 in areas where there is no Educational Opportunity Center.) Thus Talent Search reached 3.3 percent of its potential student market.

The proportion of potential Talent Search students reached has ranged between 3.1 and 3.5 percent between 1993 and 1999 as shown in the chart on this page. Across the states the proportion of students reached is less than 2 percent in **Florida, Washington, Missouri, Texas, Michigan and Arizona**. In contrast, more than 10 percent are reached in **Vermont, North Dakota, Alabama** and Iowa as shown in the chart on this page.



Talent Search Market Coverage by State 1998

Student Support Services and McNair Postbaccalaureate Achievement

There are two TRIO programs that provide supportive services to low income, first generation students once they have enrolled in college: Student Support Services and McNair Postbaccalaureate Achievement.

Student Support Services. The third program created by Congress was Student Support Services in the Education Amendments of 1968. This program is for enrolled college students. Originally this was called Special Services for Disadvantaged Students. Together with Upward Bound and Talent Search these three programs became collectively known as TRIO by the late 1960s.

The goal of Student Support Services is "to increase the college retention and graduation rates of its participants and facilitate the process of transition from one level of higher education to the next." SSS programs provide opportunities to college students for academic development, assist students with basic college requirements and serves to motivate students toward graduation.

Student Support Services programs provide: instruction in basic skills; tutorial services; academic, financial or personal counseling; assistance in securing admission and financial aid for enrollment in 4-year institutions; assistance in securing admission and financial aid for enrollment in graduate and professional programs; information about career options; mentoring; and special services for students with limited English proficiency.

In 1999 $178,917,000 was awarded to 796 SSS programs in colleges and universities serving 178,099 students. The average number of students per program was 224, and the average expenditure per student was $1005.

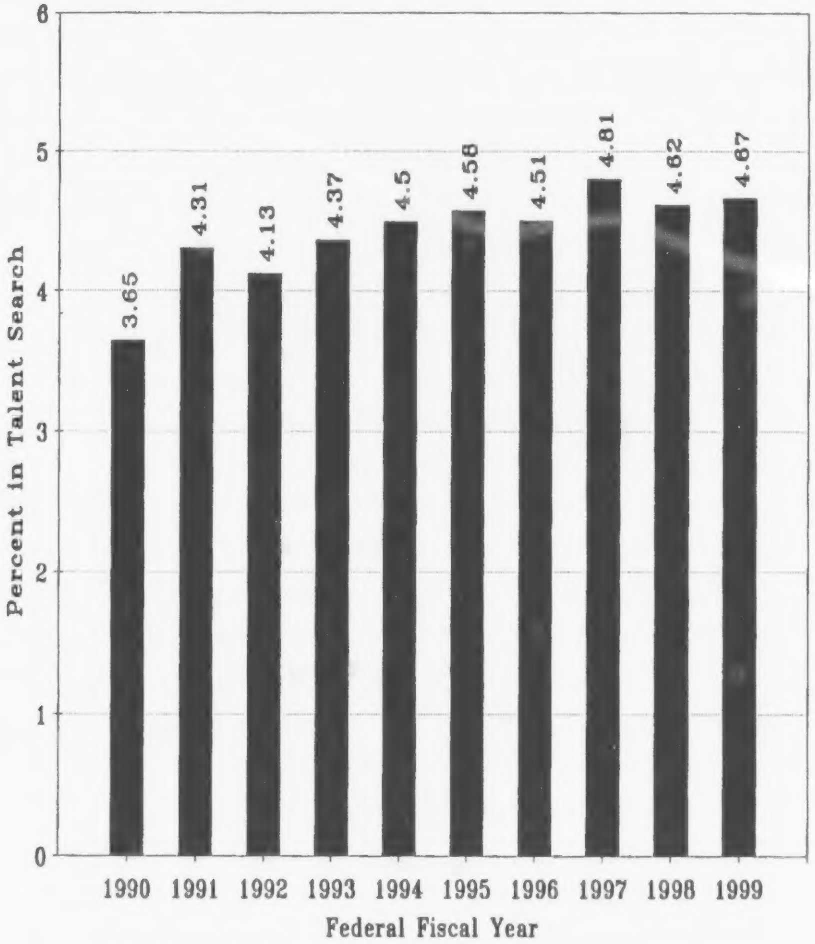
We analyze the market penetration of these two programs together, because they are both serving low-income, first-generation students that are enrolled in college.

McNair Postbaccalaureate Achievement. The McNair program was added to the TRIO program package of supportive services in 1986. The program goal is to increase "the attainment of the Ph.D by students from segments of society that are underrepresented."

McNair program services are available to students enrolled in degree-granting programs at eligible institutions. Two-thirds of students must be low-income, first-generation college students. The remaining students must be from populations that are underrepresented in graduate education.

McNair program services include: research opportunities for participants who have completed their sophomore

Low Income Undergraduate Students
Enrolled in Student Support Services and McNair
1993 to 1999



year of college; mentoring; seminars and other scholarly activities designed to prepare students for doctoral studies; summer internships; tutoring; academic counseling; assistance in obtaining financial aid; and assistance in securing admission and financial aid for enrollment in graduate programs.

In 1999-2000 $32,115,000 was awarded to 156 programs enrolling 3641 students. The average number of students in each program was 23, and the average expenditure per student was $8820.

Market penetration. We have combined Student Support Services and McNair Postbaccalaureate program enrollments because they both serve undergraduate, low-income students. Our measure of low-income college students is Pell Grant recipients.

The combined SSS and McNair student populations is 178,099. This compared to 3,856,000 Pell Grant recipients. Thus SSS+McNair programs reach about 4.6 percent of the low income population. Since 1990 this proportion has grown slightly, from 3.7 percent at the beginning of the decade.

Across the states, the ratio of SSS+McNair enrolled college students to Pell Grant recipients ranged from a high of 18 percent in Montana and 16.4 percent in Vermont to zero in Alaska, where there were no SSS or McNair programs in 1998.

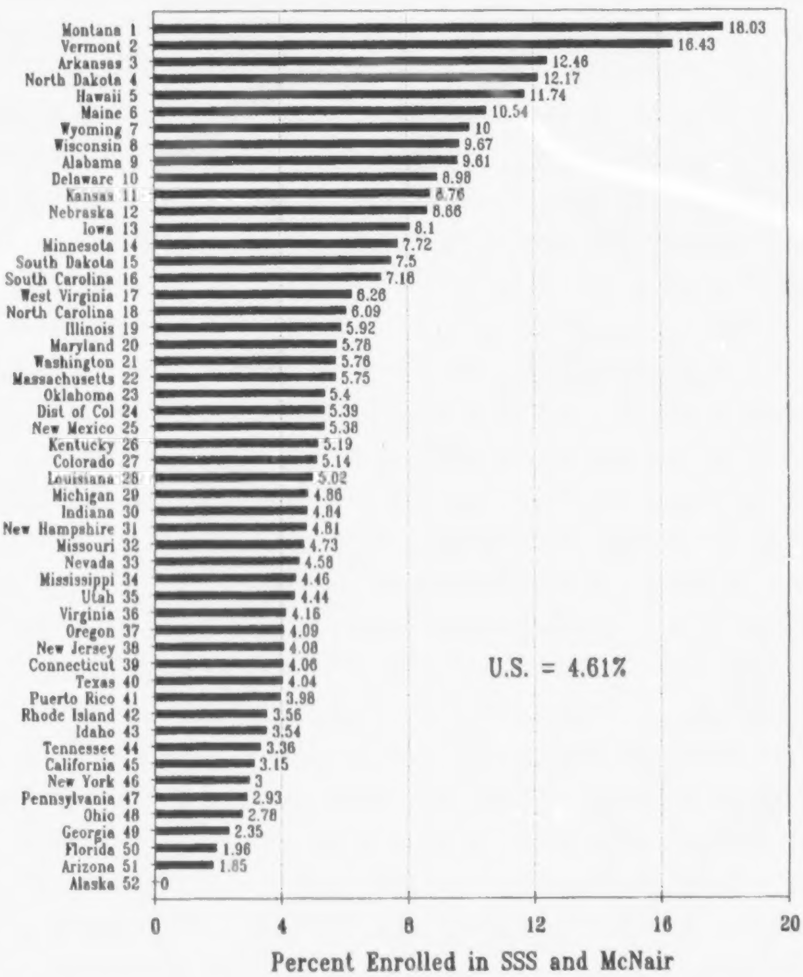
Educational Opportunity Centers

The fifth TRIO program is Educational Opportunity Centers, created through the 1972 Education Amendments. The goal of the EOC program is "to increase the number of adult participants who enroll in postsecondary education institutions."

Educational Opportunity Center program services are available to those age 19 and over, who reside in an EOC target area, and two-thirds of each program's participants must be from low income families and be first generation college students. If there is no Talent Search program in the area, EOCs may serve persons under 19 years.

EOC program services include: academic advice; personal counseling; career workshops; information on postsecondary educational opportunities; information on student financial assistance; assistance in completing applications for college admissions, testing and financial aid; coordination with nearby postsecondary institutions; media activities designed to involve and acquaint the community with higher education opportunities; tutoring; and mentoring.

In 1999 $29,794,400 was awarded to 82 Educational Opportunity Center programs serving 158,036 participants. The average program reached 1927 participants at an average cost of $189 per participant. This is a lower expenditure per participant than for



Student Support Services & NcNair Market Coverage by State
1998

any other TRIO program.

Because EOC programs serve a relatively open-ended definition of a market population for their services, we do not know how to calculate their market penetration. According to the Census Bureau, in 1998 there were 154 million americans age 18 and over without a bachelor's degree from college. Of course not all meet the low family income, first generation eligibility requirement for all TRIO programs. But clearly, even in good economic times with low unemployment, many adults could profit from higher education that they missed earlier in their lives.

TRIO and Coverage Issues

For 1999-2000, the federal government has provided $595 million in funding TRIO to provide outreach and supportive services to an estimated 722,500 participants. This is up substantially from the $240 million provided for 1990-91 to assist 456,100 participants. For the 1999-2000 year there are 2291 TRIO projects providing these services to low income, first generation participants at different locations around the country.

The TRIO programs are authorized under Title IV of the Higher Education Act of 1965, right along side the more visible and vastly more expensive federal need-based student financial aid programs. This companionship with student financial aid is no accident. Even before Congress passed the Higher Education Act in 1965, in 1964 it recognized that many disadvantaged students may not attend college at all or may not be adequately prepared to succeed in college without outside intervention, and thus created the Upward Bound program as a part of the War on Poverty.

This analysis of the potential markets reached with the five TRIO programs for low income, first generation students suggests that a very modest proportion--less than 5 percent--are reached with these federal efforts.

Most recently the federal government has expanded its early intervention programming with GEAR UP--Gaining Early Awareness & Readiness for Undergraduate Programs. Inaugurated in 1999 GEAR UP grants were awarded to 21 states and 164 partnerships of colleges and middle schools. These programs were expected to reach more than 250,000 students in the first year, and funding for 2000 is expected to expand this to 482,000 students.

So who is missed? How many are reached in other ways? Is this enough?

In addition to these federal outreach and supportive services, several states have made serious outreach and support service commitments to disadvantaged students on their own. **New York, New Jersey and Pennsylvania** form the Tri-State Consortium of state programs that provide outreach and support services.

Several other states offer notable programs, including **Indiana, Wisconsin** and others. But like state financial aid programs, state efforts are highly uneven with some states making major efforts and most of the remaining states doing little or nothing through programs targeted on disadvantaged students.

Many communities have recognized local needs and have created community-based pre-college outreach and scholarship programs that are usually targeted on low income and/or first generation students. About 52 of these programs are allied under the organization of the **National College Access Network**. Other major networks of community-based programs include the **Scholarship Foundation of America, Communities in Schools,** and many foundations, youth organizations, professional associations, and others.

What we are left with is an uneasy feeling that the combination of these federal, state and community-based initiatives leave large coverage gaps. The many initiatives each have a specific focus and none are universal. Quite likely many disadvantaged students are not reached through these efforts, maybe most.

We think another path must be considered that includes all students:

> *The purpose of high school should be to prepare all students for college and for life-long learning.*

Since the early 1970s, the labor market value of a high school diploma has been in decline. This market signal indicates that a high school diploma is no longer adequate to meet the educational needs of employers for the better paying jobs that offer access to the American middle class.

We do not expect all high school students to attend college, at least immediately after high school. But eventually most will--certainly over 80 percent. And many of those who don't will of necessity pursue other forms of training to perform the tasks required by employers.

Cast in this way, high school should not be viewed as the end of education for anyone, least of all those disadvantaged by the circumstances of their birth. Rather, the high school experience for everyone must be conceived and executed as the launch-pad to the next level of education or training. That may not mean college, but it does mean more formal and continuous education *for everyone.*

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Number 96 **www.postsecondary.org** **June 2000**

College Continuation Rates for 1999 High School Graduates

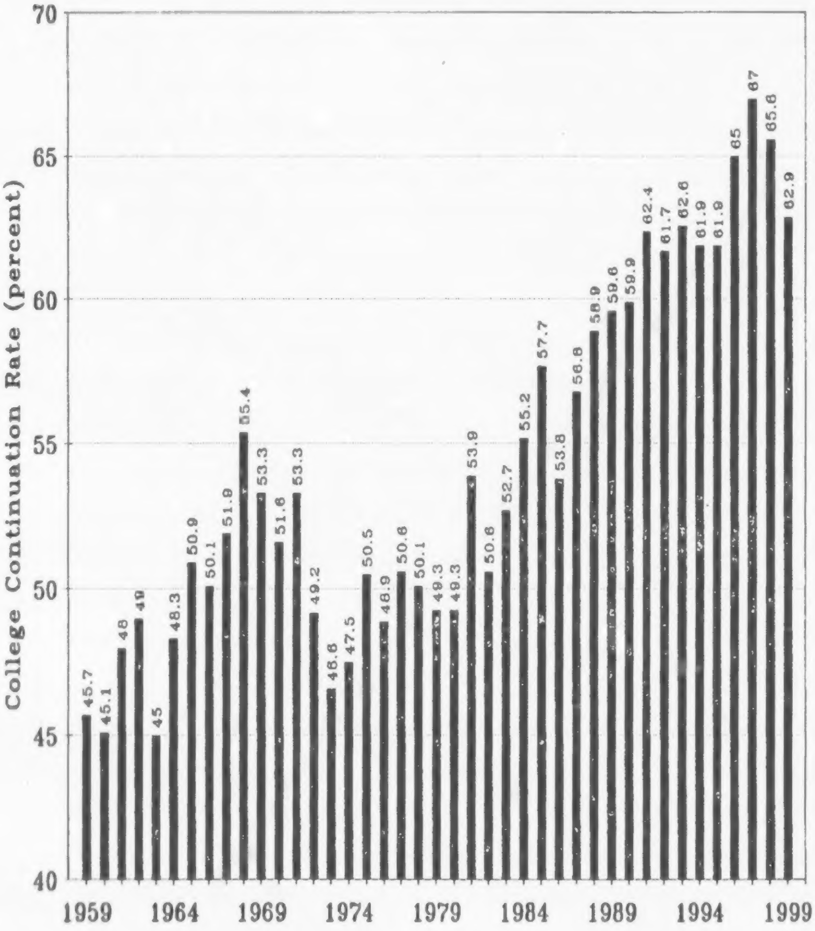
During the 1998-99 academic year, 2,897,000 students graduated from high school in the United States. This was up from 2,810,000 in 1998, and 2,769,000 in 1997. These numbers are up from a low of 2,276,000 in 1991. This was the largest number of public and private high school graduates since 1984 when the total was 3,012,000.

Of the 1998-99 high school graduates, 1,822,000 were enrolled in college by October of 1999. This was down from 1,844,000 in 1998 and 1,856,000 in 1997--the all-time record high.

Thus, for the last two years, while the number of high school graduates has increased, the number of fall college freshmen produced from these classes has declined. In 1999 the college continuation rate was 62.9 percent, down significantly from 65.6 percent in 1998 which was also down significantly from 67.0 percent in 1997. The 1991 college continuation rate was roughly similar to the rates in 1991 (62.4 percent) and 1993 (62.6 percent).

Compared to the peak 1997 rate, the decline in the college continuation rate meant that about 119,000 fewer 1999 high school graduates continued their educations by the fall of 1999.

College Continuation Rates
for Recent High School Graduates
1959 to 1999



These declines in college continuation rates for the 1998 and 1999 high school classes are politically and economically very important:

- 1998 and 1999 are the first two years of President Clinton's loudly touted Hope and Lifetime Learning federal income tax credits. We have criticized these tax credits as misdirected because they will largely go to people who do not need them. In fact our fears are confirmed: in the first two years of these hugely expensive tax credits ($7 billion per year), the rate at which high school graduates have continued their educations in college the following fall has declined significantly.

- The economic loss that will result from a growing share of high school graduates choosing not to continue into college will be large. Without postsecondary education and training, those entering the labor market directly after high school will ultimately earn less money, pay less in taxes, and will not be prepared through education to meet the skilled labor shortages of the labor force.
- We do not know if those who are now choosing not to continue their educations immediately after high school will return to college later in their lives. But we do know from research that their chances of ever completing a bachelor's degree decrease by delaying their entry into college.

Our analyses of the recently released data are not encouraging. Between 1998 and 1999, the college continuation rate declined for every reported population breakdown: men, women, whites, blacks and Hispanics.

Longer term trends in these data tell important stories of their own.

- Between 1959 and 1999, the college continuation rate increased by 7.2 percent for males, and by 25.8 percent for females.
- Between 1960 and 1999, the college continuation rate for whites increased by 17.0 percent, and by 27.1 percent for non-whites.
- Between 1977 and 1999, the college continuation rate for blacks increased by 9.6 percent, but it *decreased* for Hispanics 9.1 percent.

These and other important findings are gleaned from our analysis of the recently released data by the Bureau of Labor Statistics.

The Data

Each month the Census Bureau collects data for the Bureau of Labor Statistics through the Current Population Survey on employment and unemployment conditions in the United States. The CPS survey uses a national sample of about 50,000 households to measure trends and patterns of employment in the civilian, noninstitutional population.

In the October Current Population Survey, an education supplement to the CPS gathers additional data on school and college enrollments in the United States. The Census Bureau eventually publishes an extensive set of tabulations of data from this education supplement to the CPS. The Census Bureau's report appears in the P20 series of Current Population Reports under the title "School Enrollment-Social and Economic Characteristics of Students."

But many months before this more elaborate tabulation appears--in May or June--the Bureau of Labor Statistics issues its own greatly shortened tabulation of data from this survey. The BLS report highlights the employment and college enrollment data for those between the ages of 16 and 24 years who have left high school in the previous 12 months, either as graduates or dropouts. This BLS news release provides an early report on several important educational issues:

- The rate at which high school graduates enroll in college by October following high school graduation
- Where they enroll (2-year or 4-year) and their enrollment status (full-time or part-time)
- College continuation rates by gender and race/ethnicity
- All of the above over time, in some cases back to 1959

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Mission Statement

This research letter is founded on two fundamental beliefs. First, sound public social policy requires accurate, current, independent, and focused information on the human condition. Second, education is essential to the development of human potential and resources for both private and public benefit. Therefore, the purpose of this research letter is to inform those who formulate, fund, and administer public policy and programs about the condition of and influences that affect postsecondary education opportunity for all Americans.

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- High school dropout data, for those who leave high school without a diploma, by gender and race/ethnicity
- Labor force participation data, including unemployment rates

The most recent data from the Bureau of Labor Statistics appears in:

"College Enrollment and Work Activity of 1999 High School Graduates." May 17, 2000. *News.* USDL-136. Washington, DC: Bureau of Labor Statistics.

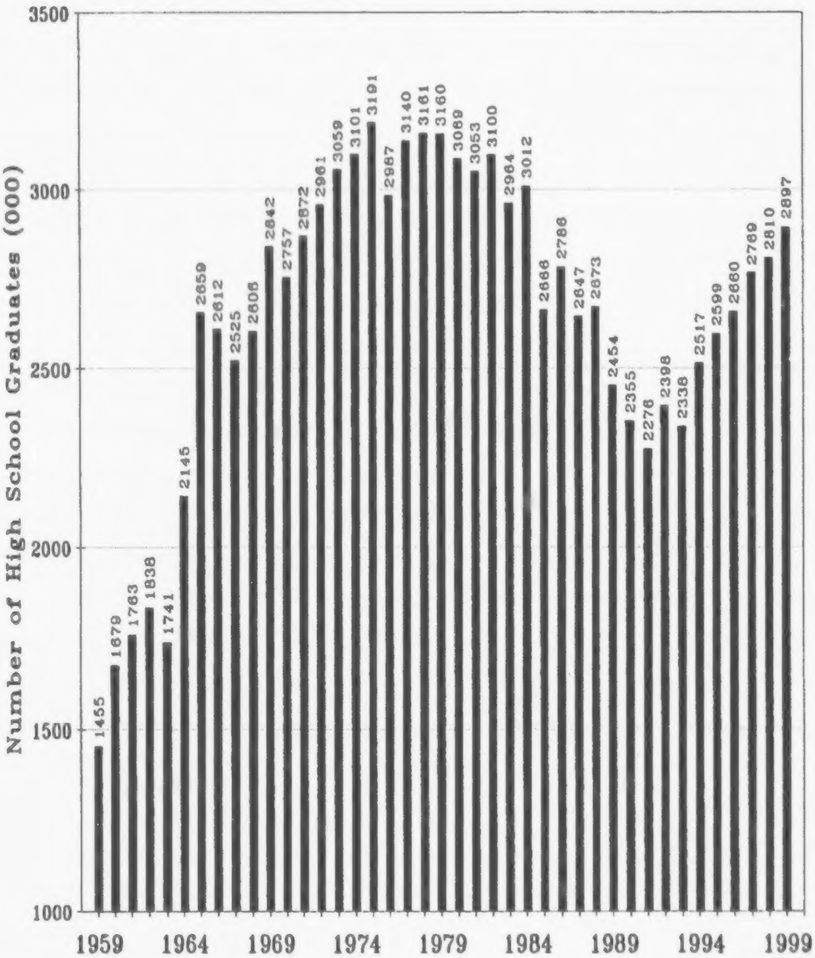
High School Graduates

The BLS reports that in 1999 there were 2,897,000 high school graduates in the United States. This was up from 2,810,000 a year earlier, and well above the nadir of 2,276,000 reached in 1991--the "baby bust" era. However, the 1999 total was also well below the peak of 3,191,000 reached in 1975--19 years after 1946 when family formation delayed by World War II climaxed.

The shifting racial/ethnic composition of the high school graduate population is buried in the details reported by BLS.

- Between 1976 and 1999, the number of white non-Hispanic high school graduates *declined* from 2,488,000 to 1,958,000, or from 83 to 68 percent of all graduates.
- During this same period, the number of black high school graduates *increased* from 320,000 to 453,000, or from 11 to 16 percent of the total.
- The number of Hispanic high school graduates *increased* from 152,000 to 329,000 between 1976 and 1999. The Hispanic share of the total increased from 5 to 11 percent.

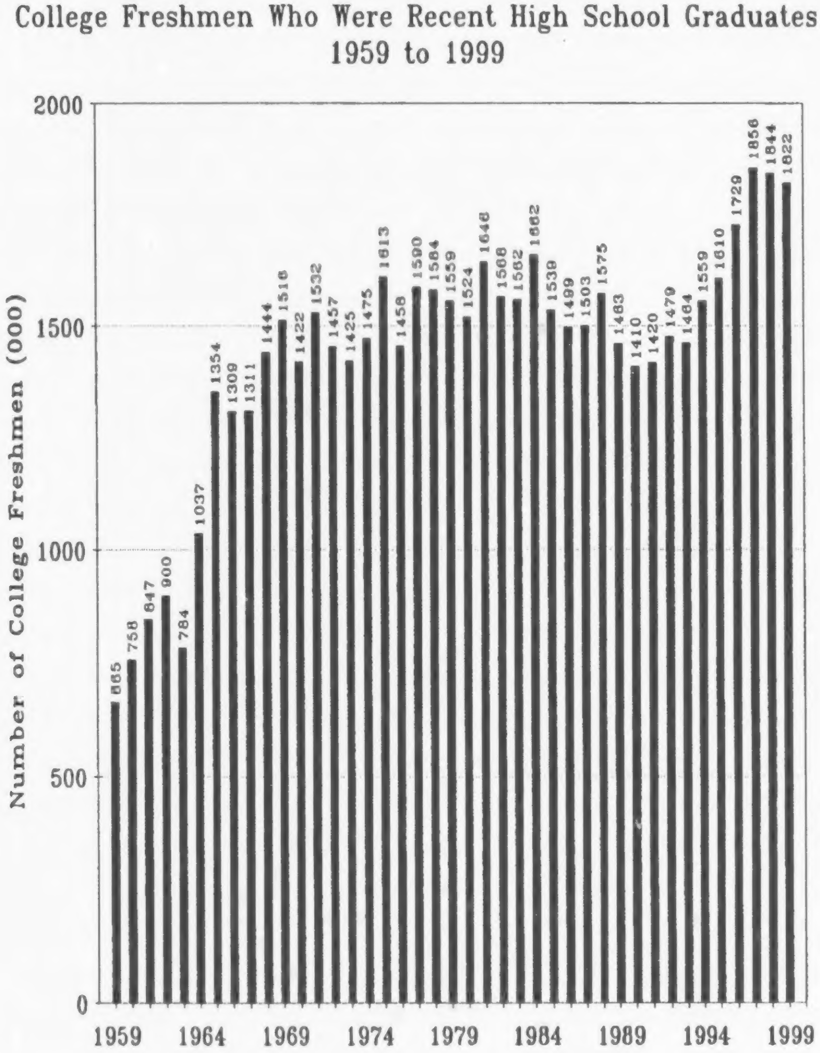
High School Graduates
1959 to 1999



- The number of "other race" high school graduates (including Asians and American Indians) increased from 27,000 to 157,000, or from 0.9 to 5.4 percent of the total.

Clearly, the racial/ethnic composition of the annual crop of high school graduates is shifting, sharply away from northern European whites and toward blacks, Hispanics and Asians. Notably, the share of the high school graduate population that is shrinking has the highest family incomes, while the growing shares of the this population have far lower family incomes. Blacks and Hispanics in particular have median family incomes that are less than half those of non-Hispanic whites. Financing opportunity for postsecondary education and training is already and will continue to be an ever more serious public policy challenge.

The most recent projections of high school graduates by the National Center for Education Statistics show continued increases in high school graduates through 2009. The previous peak of 3,191,000 graduates reached in 1975 will not be broken until 2008


College Freshmen Who Were Recent High School Graduates 1959 to 1999

when 3,195,000 students will graduate. By 2009 it will reach 3,248,000.

The Western Interstate Commission for Higher Education has published its own projections of high school graduates through 2012. The WICHE projections show high school graduates peaking at 3.2 million in 2008, then dropping off to 3.0 million by 2012.

Significantly, the WICHE projections of public high school graduates (90 percent of all high school graduates are public) are presented by race/ethnicity. The proportion of white non-Hispanic public high school graduates will decline from about 70 percent in 1999 to 60 percent by 2012. The proportion that is black will rise from 13 to 14 percent, for Hispanics from 10 to 19 percent and Asians from 5 to 7 percent.

The changing racial/ethnic profile of public high school graduates is described nowhere more clearly than in the WICHE projections. Between 1996 and 2012, the change in the number and percent of public high school graduates will be:

blacks	+71,436	+17.9%
Amer Indian	+15,541	+75.2%
Asian, PI	+94,063	+93.2%
Hispanic	+299,388	+137.1%
white, non-H	-3,631	-0.2%

College Freshmen

In October of 1999 there were 1,822,000 college freshmen who had graduated from high school in the previous 12 months. This was down from 1,844,000 freshmen in 1998 and 1,856,000 in 1997, despite increases in the number of high school graduates in both 1998 and 1999. The 1999 freshman cohort is the third largest on record, following the 1997 and 1998 cohorts.

Again the shifting racial/ethnic composition of the population is reflected in the freshman class--in some unsettling ways.

- White non-Hispanic freshmen, who were 64.8 percent of the population of high school leavers (grads plus dropouts), were 67.6 percent of the high school graduating class and were 71.2 percent of those who made it to college by October of 1999. (Non-Hispanic whites also received 79.5 percent of the bachelor's degrees awarded in 1996-97.)
- Blacks, who were 16.7 percent of the population of high school leavers, were 15.6 percent of the high school graduates, and were 14.7 percent of the college freshmen. (Blacks received 8.3 percent of the bachelor's degrees in 1996-97.)
- Hispanics were 13.1 percent of the population of high school leavers, 11.4 percent of the high school graduates and 7.6 percent of the college freshmen. (Hispanics received 5.5 percent of the bachelor's degrees in 1996-97.)
- Those of other race--mainly Asian and American Indian--were 5.4 percent of the population of high school leavers, 5.4 percent of the

high school graduates and 6.4 percent of the college freshmen. (In 1995-96, Asians and American Indians received 6.7 percent of the bachelor's degrees.)

Similarly, males were 50.2 percent of the population of high school leavers, 50.9 percent of the high school graduates and 49.7 percent of the college freshmen.

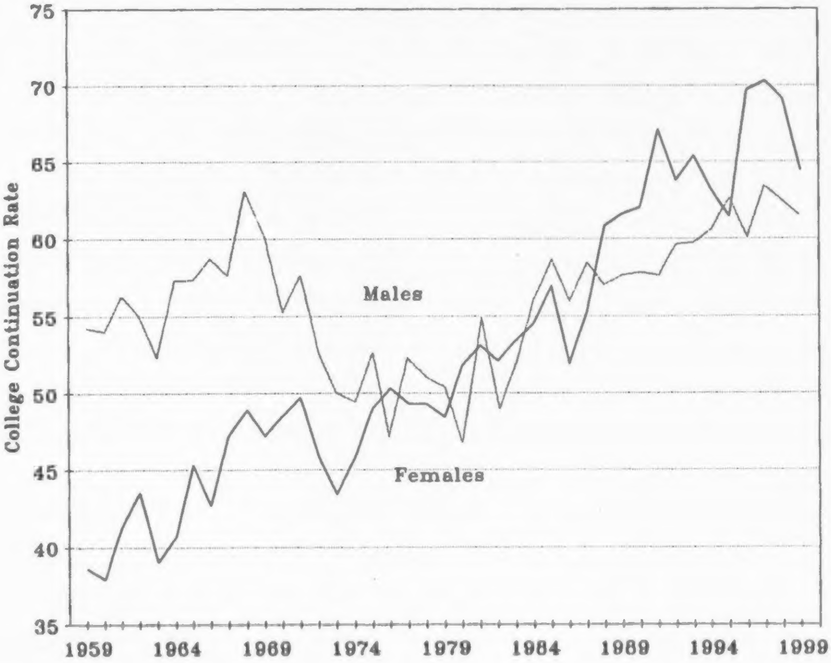
College Continuation Rate

The *college continuation rate* is the proportion of high school graduates enrolling in college the following fall. In 1999 the CCR was 62.9 percent. This was down from 65.6 percent in 1998 and 67.0 percent in the peak year of 1997. These data are shown in the chart on the first page of this issue of OPPORTUNITY. This is the first time since the early 1970s that the CCR has significantly declined two years in a row.

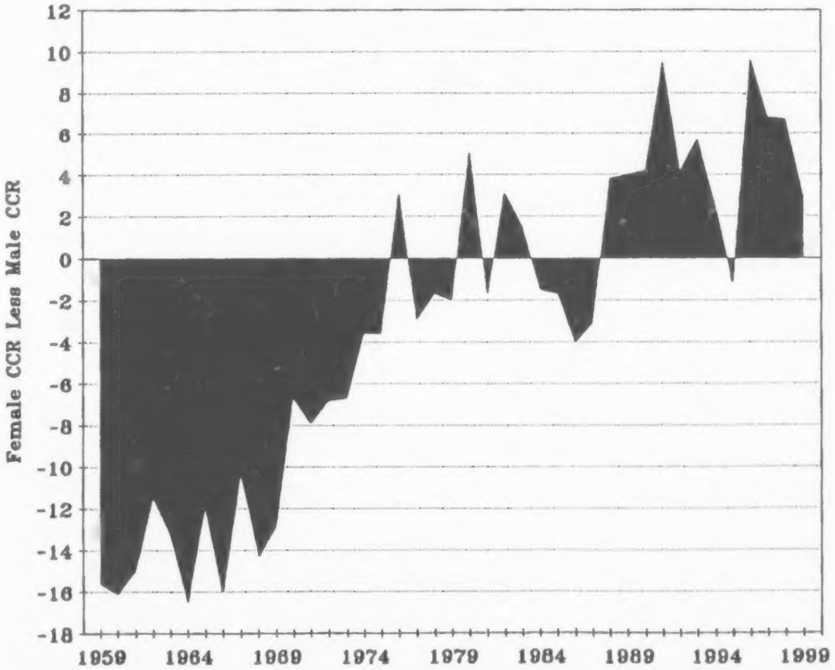
The trend in college continuation rates has been steeply upward since the early 1970s. Between 1973 and 1999 the college continuation rate has increased from 46.6 to 62.9 percent, an increase of 16.3 percentage points. This increase means that compared to the 1973 CCR, in 1999 472,000 more high school graduates continued their educations in college in the fall after high school graduation.

But the decline in the college continuation rate between 1997 and 1999 means that about 119,000 fewer high school graduates attended college than could have been expected at the 1997 rate. Despite the enactment of the Hope and Lifetime Learning Tax Credits by President Clinton in 1997, that provided about $7 billion each year in increased financial assistance to middle and upper income families, a declining share of 1998 and 1999 high school graduates chose to attend college following high school.

College Continuation Rates by Gender
for Recent High School Graduates
1959 to 1999



Difference Between College Continuation Rates by Gender
for Recent High School Graduates
1959 to 1999



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Gender

The college continuation rate for males in 1999 was 62.9 percent, and for females it was 64.4 percent, as shown on the previous page. For most of the last decade the rate at which women continued their educations after high school has exceeded the male rate and 1999 was no exception to this pattern. Both rates were down from 1998, which in turn were below peak CCRates reached in 1997.

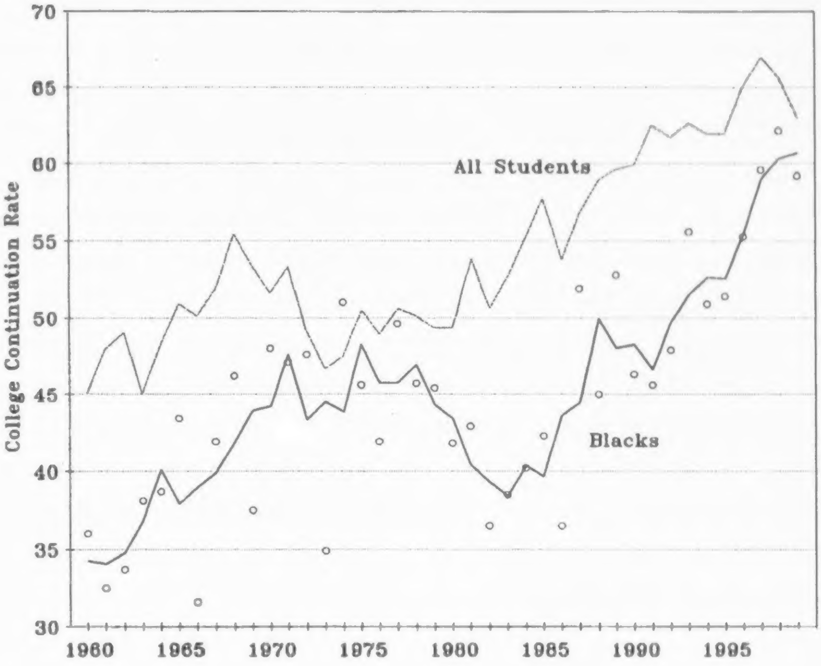
Since the inception of this data series in 1959 by the Bureau of Labor Statistics, the college continuation rate for males has increased by 7.2 percentage points while it increased by 25.8 percentage points for females. Females caught up with males in their college continuation rates between about 1968 and 1976, then had similar rates to those of males through the late 1980s. But since 1988, the CCR for females has averaged 4.9 percentage points above the male rate.

Monitoring these data leaves us amazed by the disparities: Are young men and women living on the same planet? Are they growing up in the same families? Are they coming from the same schools and headed for the same labor markets?

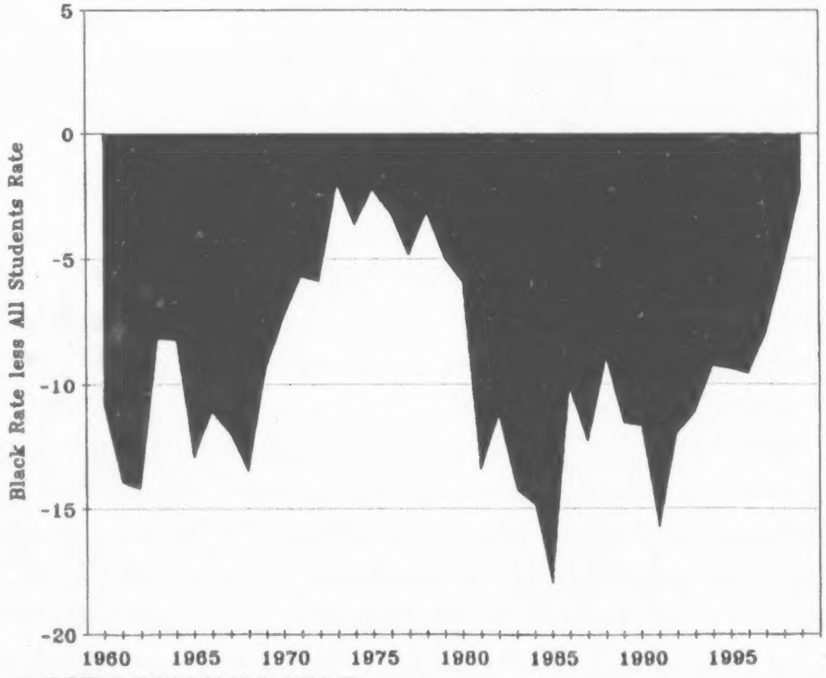
Race/Ethnicity

Here we examine college continuation rates for the several racial/ethnic groups reported by BLS or derived from their published data (in the case of Asians. The college continuation rate for each group is compared to the college continuation rate for all students for the appropriate years. And, due to sampling variability and our interest in underlying trends, we smooth the spiky data with a three year moving average (two years on the tails).

College Continuation Rates for All Students and Black Recent High School Graduates 1960 to 1999



Difference Between Black and All Students College Continuation Rates 1960 to 1999



Blacks. In 1999 the college continuation rate for recent black high school graduates was 59.2 percent. This was down from the record 62.1 percent in 1998, and down slightly from the 1997 rate of 59.6 percent. However, the college continuation rates for blacks for the last three years have been the highest on record.

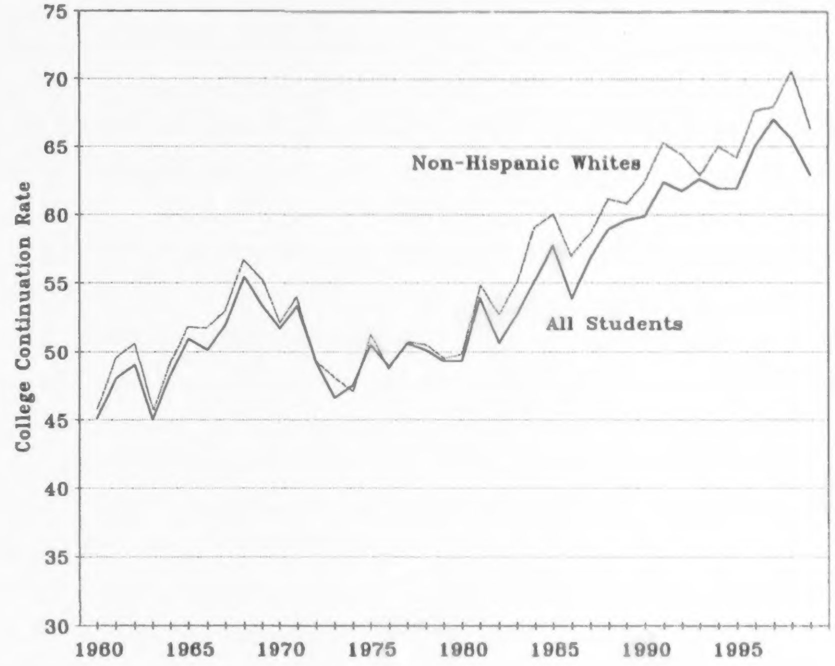
The charts on the previous page show distinct trends in the college continuation rate for blacks. Some of these periods appear to coincide with fluctuations experienced by all students, while others are unique to the black experience. Compared to all students, blacks made substantial gains between 1968 and 1973, held those relative gains through 1980, then lost those gains between 1980 and 1981, maintained the loss through about 1993 and have since regained all of the early 1980s losses. With the exception of the losses by blacks in college continuation rates in the early 1980s, the black CCR has fluctuated with all students: up in the 1960s and 1970s upward since the mid-1980s. Clearly blacks have made substantial absolute and relative gains in college continuation rates over the last four decades.

White, non-Hispanics. The non-Hispanic white population is still the largest single share of the population. In 1999 it constituted 67.6 percent of the population of recent high school graduates. In 1976 it had been 83.3 percent of the total.

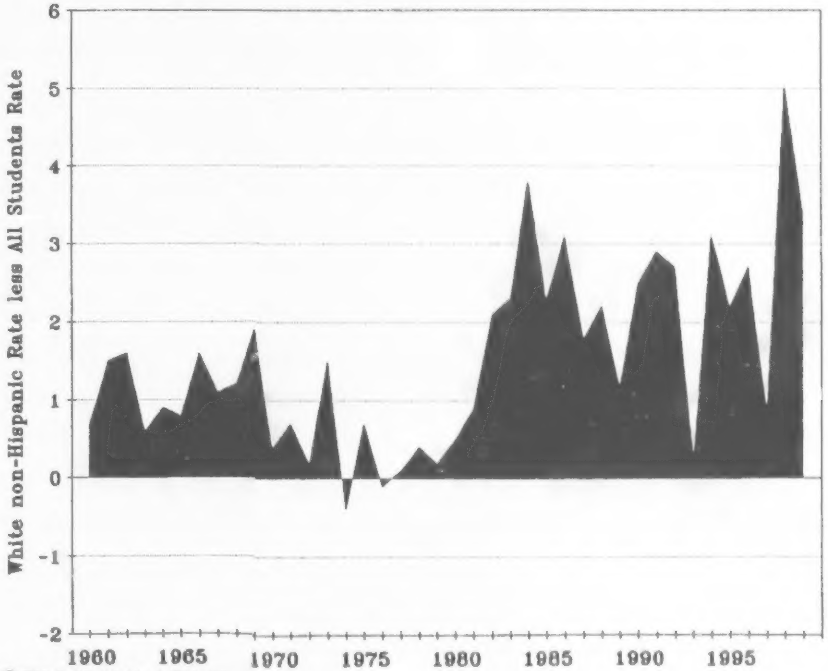
The college continuation rate for non-Hispanic whites was 66.3 percent. This was down significantly from 70.6 percent in 1998 and 67.9 percent in 1997. Over time, the college continuation rate for non-Hispanic whites has tended sharply upward, from 45.8 percent in 1960, to 52.0 percent by 1970, to 49.8 percent in 1980 and 62.4 percent by 1990.

Compared to the CCR for all students, the rate for non-Hispanic whites has increased faster since the 1970s.

College Continuation Rates for All Students and White Non-Hispanic High School Graduates 1960 to 1999



Difference Between White non-Hispanic and All Students College Continuation Rates 1960 to 1999



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In the 1960s, the CCR for whites averaged 1.2 percent above the rate for all students. From 1970 through 1981, during the nation's brief period of commitment to equal educational opportunity, it averaged 0.4 percent above the CCR for all students. Since 1982, however, the CCR for non-Hispanic white students has averaged 2.5 percent above the rate for all students. And for the last two years, 1998 and 1999, it has averaged 4.2 percent above the rate for all students.

Over the last two decades, federal, state and institutional financial aid policies and programs have shifted sharply away from financially needy populations. These data show that this policy and program shift has increased the relative advantage of affluent non-Hispanic white students over the rest of the population.

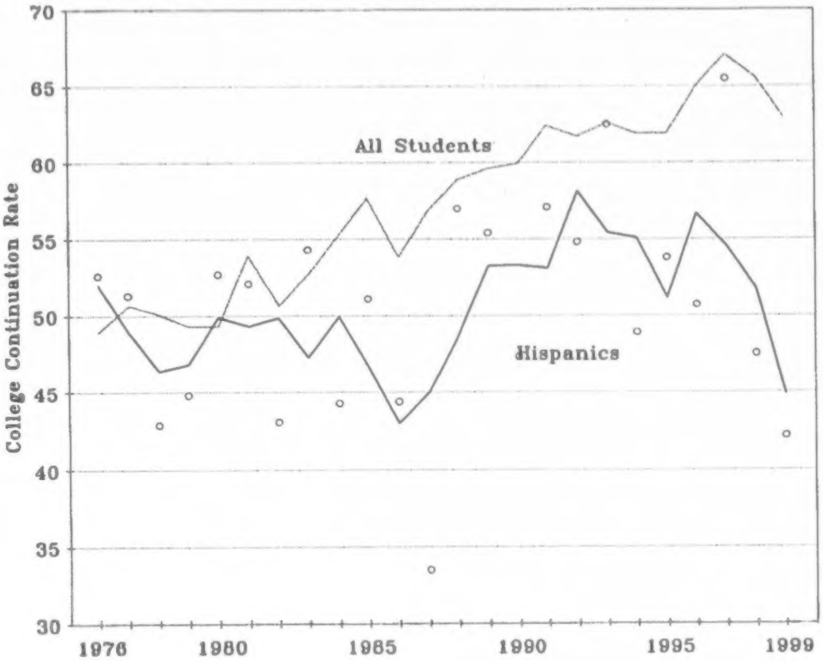
Hispanics. Hispanics comprised 11.4 percent of all high school graduates in 1999, up from 5.1 percent in 1976. By 2012 Hispanics are projected to be 19 percent of all public high school graduates. Clearly, Hispanics will be a growing share of the American workforce. What is less clear is how well they will be educated to become productive and well-paid workers.

In 1999 42.2 percent of recent Hispanic high school graduates were enrolled in college the following fall. This appears to be down from 47.5 percent in 1998 and 65.5 percent in 1997, and even 52.6 percent in 1976 when these data were first reported.

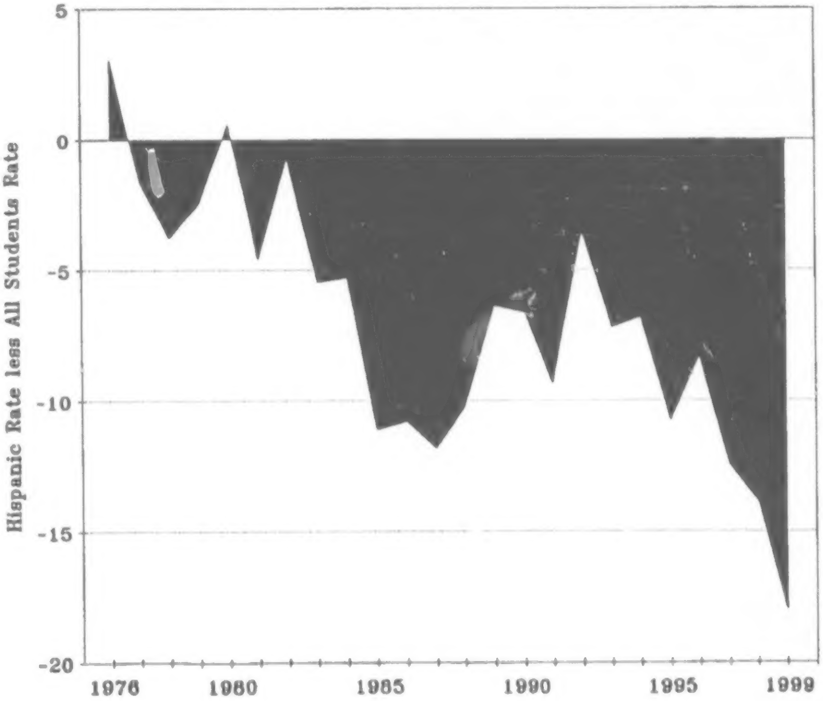
Because of sampling variability that is particularly acute in the Hispanic numbers examined here, we focus mainly on trends in these data. This trend is a moving three-year average of the annual CCR for Hispanics.

The CCR for Hispanics has been stuck at around 50 percent for the last twenty-five years. While the rates for other groups have increased during

College Continuation Rates for All Students and Hispanic Recent High School Graduates 1976 to 1999



Difference Between Hispanic and All Students College Continuation Rates, 1976 to 1999



this period, the college continuation rate for Hispanics has fallen ever farther behind. In 1976 the CCR for Hispanics was briefly above that for all students. For the last two years the rate for Hispanics has been about 15 percentage points below the rate for all students. And this situation appears to have very rapidly deteriorated over the last five years.

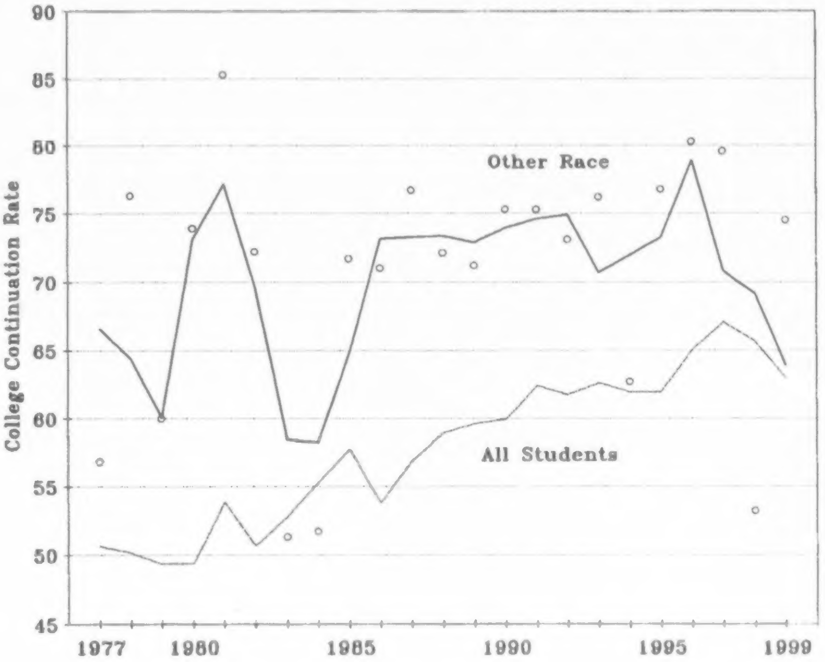
Clearly something is badly wrong here. There is a serious disjuncture between the growing educational attainment needs of the labor force, and the lack of progress in educational attainment for Hispanic youth. If the data are to be believed, then this rapidly growing share of the U.S. population will be left farther and farther behind in the competition for the best paying jobs available. Incomes and living standards for Hispanics will fall farther behind averages for the U.S.

Other race. We derive other race high school graduate and college freshmen numbers from the published Bureau of Labor Statistics data by subtracting whites and blacks from the totals. This residual is other race, and consists mainly of Asians but also includes American Indians.

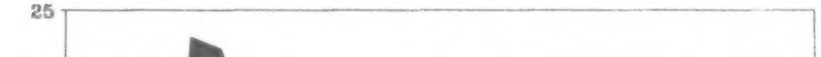
In 1999 those of other race were 5.4 percent of the high school graduate population. In 1976 they constituted 0.9 percent of the high school graduates. By 2012 they will be 8.5 percent of all public high school graduates.

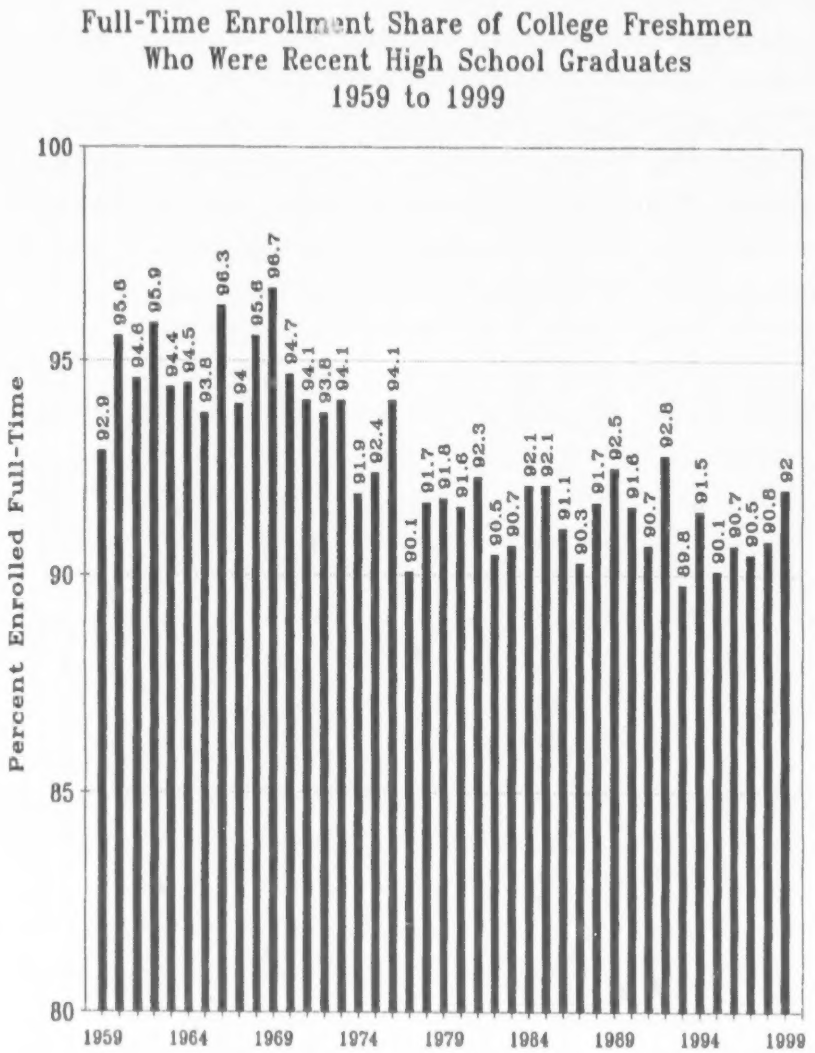
In 1999 the college continuation rate for those of other race was 74.5 percent. Because this too is a small portion of the population, sampling variability produces statistical spiking. When we smooth out the data with the moving three-year average, the CCR for this group has usually been between 70 and 75 percent. This is well above the CCR for other groups. Clearly this population group

College Continuation Rates for All Students and Other Race (mainly Asian) Recent High School Graduates 1977 to 1999



Difference Between Other Race (mainly Asian) and All Students College Continuation Rates, 1977 to 1999





continues their education after high school at very high rates.

However, the remarkable advantage this group has enjoyed relative to the college continuation rate for all students has been eroding over the last dozen or so years. This appears to be more caused by the growth in the college continuation rates for other groups--whites and blacks--during this period, rather than any real decline in the CCR for those of other race. Apparently other groups--again whites and blacks--have made gains in college continuation rates while those of other race have not.

Enrollment Status

In October of 1999, 92 percent of the freshmen who had graduated from high school in 1998-99 were enrolled full-time. These data have been reported by BLS since 1959. Over the last four decades, the proportion of freshmen who were full-time has ranged between 89.8 (1992) and 96.7 percent (1969).

In the 1960s freshmen were most likely to be enrolled full-time--about 95 percent were enrolled full-time then. In the 1970s the full-time proportion declined, and has fluctuated around 91 percent since about 1980.

Institutional Level

The Bureau of Labor Statistics has reported institutional level data since 1991. In October of 1999 66.6 percent of the freshmen were enrolled in 4-year institutions, and the remaining 33.4 percent were enrolled in 2-year institutions.

Since 1991 there has been noble shift in enrollments. The share of freshmen enrolled in 4-year institutions has steadily shifted from 60.1 to 66.6 percent between 1991 and 1999, while the share enrolled in 2-year colleges has gone from 39.9 to 33.4 percent.

Summary

Here we have analyzed data collected by the Census Bureau and recently reported by the Bureau of Labor Statistics. This report was first published in 1959 and now provides 41 years of data. It is also the first of the federal Census and NCES reports on 1999 high school graduates and college freshmen.

In October of 1999 62.9 percent of the 1998-99 high school graduates were enrolled in college. This was down from 65.6 percent in 1998 and down from the peak of 67.0 percent recorded in 1997. The decline occurred among all population groups.

Our analysis of long term trends reveals gains by some in college enrollment immediately following high school, and losses by others. The long-term gainers are women, non-Hispanic whites and blacks. The losers are males and Hispanics. In between are those of other race--mainly Asian--who are ahead of all students but whose lead has been eroded over the last twelve years.

Trends in Remaining Financial Need for Dependent Illinois Undergraduate Students FY1987 to FY2000

The college affordability studies of the Illinois Student Aid Commission (ISAC) offer insight into trends over time in college affordability for dependent Illinois undergraduates. These studies begin with the 1986-87 academic year. The most recent of these extends the previous studies through the 1999-2000 academic year.

These studies monitor "remaining financial need" for full-time state resident undergraduate students at Illinois public 4-year, public 2-year and private Illinois institutions. Remaining need is calculated for each Illinois family income quintile.

In these studies, ISAC defines "remaining financial need" as:

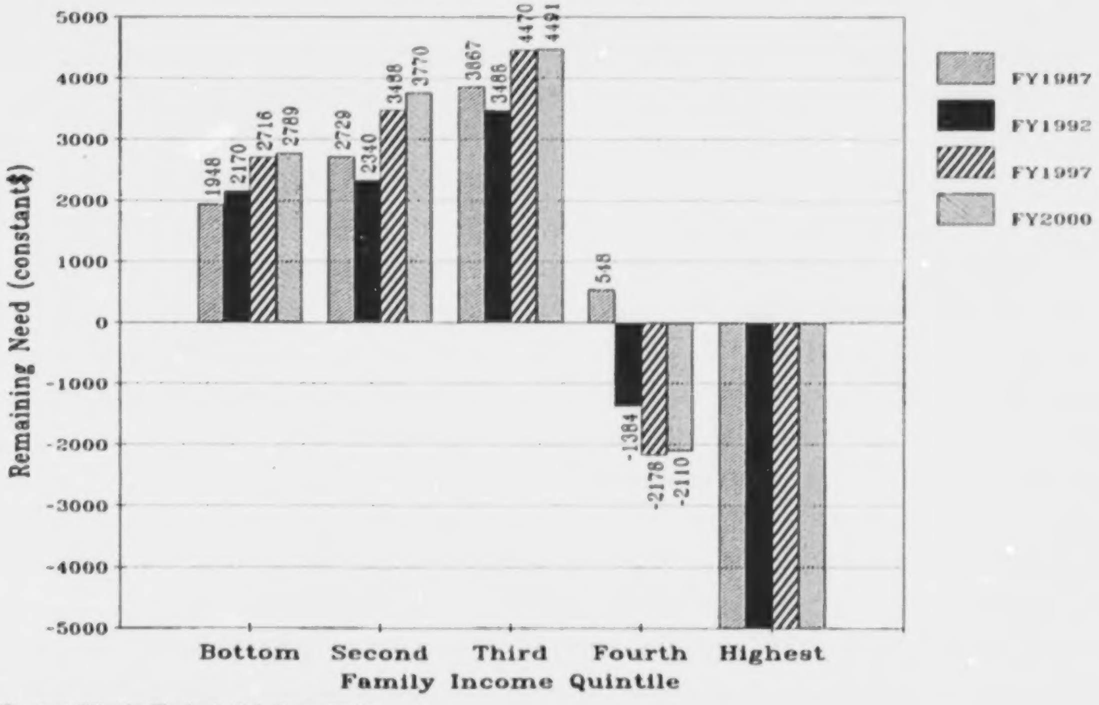
	cost of attendance
less	expected family contribution
less	Pell Grant
less	Illinois MAP Grant
equals	remaining financial need

The Illinois Monetary Award Program (MAP) grant program is the second largest state-funded need-based grant program in the U.S., following New York's Tuition Assistance Grant Program (TAP). Currently Illinois provides over $300 million yearly to over 135,000 students.

Because this grant program is designed to help financially needy students and their families pay college attendance costs, ISAC periodically monitors and reports on the contribution of the MAP grant to college affordability. The analytical design and reporting format readily facilitates comparisons of remaining financial need within and between institutional type and control over time.

This approach does not include all financial aid received by Illinois undergraduate students to pay their college attendance costs. It does not include the self-help components of financial aid (loans, work-study and earnings from off-campus employment), nor does it include other federal, state or institutional gift assistance received by students.

Remaining Financial Need (COA-EFC-Pell-Map) for Dependent Undergraduates at Illinois Public Universities FY1987 to FY2000



Source: Illinois Student Aid Commission

Illinois does not have a financial aid unit record data base system that would permit this kind of analysis. (States that do have unit record financial aid data systems include Washington, Vermont, New Mexico and Colorado, plus the federal National Postsecondary Student Aid Study.) Unit record financial aid data systems provide a more complete financial picture than the approach used here.

However, in the role assumed by MAP in financial aid packaging—building on EFC and PELL to help students and families meet financial need--the ISAC studies offer valuable insight into trends and patterns of remaining financial need for Illinois undergraduate students and for those state officials responsible for helping them finance their undergraduate educations.

Copies of the more complete study are available on request to the study's author, Sheila Pruden, at the Illinois Student Aid Commission in Springfield, Illinois. Contact via e-mail at: pruden@isac.org or phone at 217/782-6767.

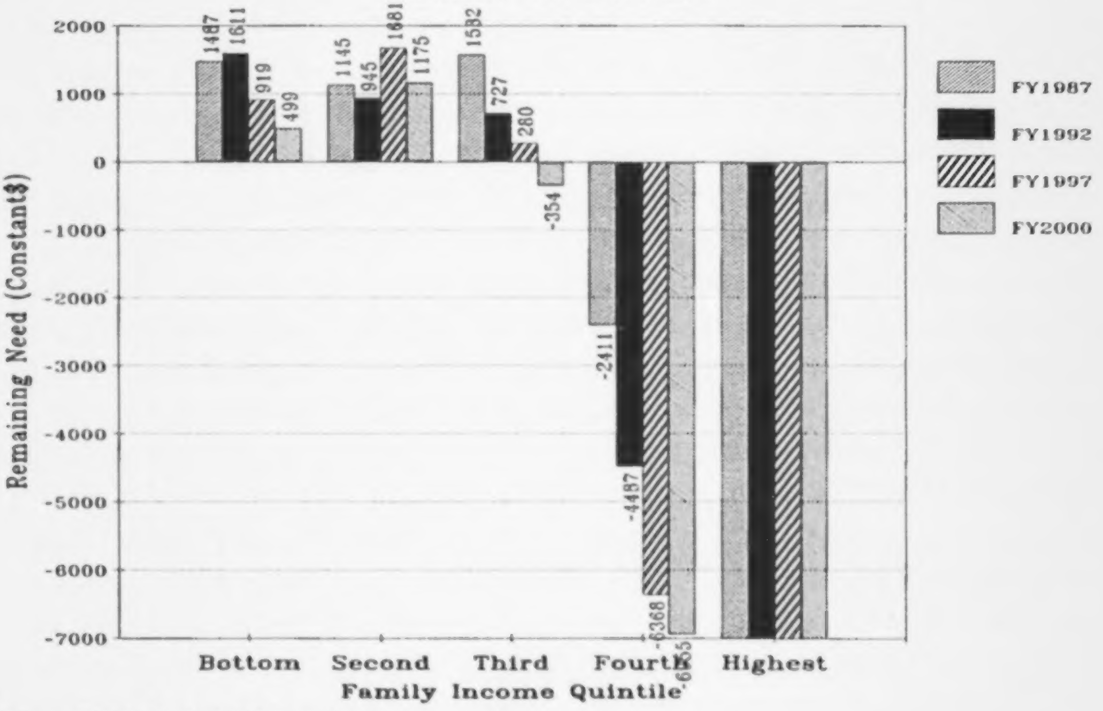
Family Income Quintiles and EFC

The Illinois family income quintiles and the corresponding family incomes used in this study were derived from data collected by the Census Bureau in the March Current Population Survey. The family income data used in this analysis for each quintile were derived from the Census data.

The Expected Family contributions used in this study were derived using the Census Bureau quintile family incomes and the then current methodology for calculating the EFC.

The assumed family for these calculations was a family of four, one child in college, with no asset contribution to EFC.

- The FY1987 EFC was derived from the Uniform Methodology. The $700 minimum student contribution that was a part of the UM was deleted from this calculation to facilitate comparisons of parental contribution from income.
- The FY1992 EFC was calculated using the Congressional Methodology. Again, the minimum students contribution of $700 was not used in this EFC.
- The FY1997 and FY2000 EFCs were calculated using the Federal Methodology, which eliminated the minimum student contribution from the UM and CM methodologies.



Remaining Financial Need (COA-EFC-Pell-Map) for Dependent Undergraduates at Illinois Community Colleges FY1987 to FY2000

Source: Illinois Student Aid Commission

Remaining Financial Need of Illinois Dependent Undergraduates FY1987 to FY2000

Quintile		FY1987	FY1992	FY1997	FY2000
Lowest Quintile	Family income	$10,792	$12,267	$13,616	$15,102
	Public 2-Year				
	COA	$4,691	$4,866	$4,986	$5,197
	- EFC	0	0	0	0
	- Pell Grant	$2,020	$2,072	$2,616	$3,125
	- MAP Grant	$1,184	$1,183	$1,451	$1,573
	= Remaining Need	$1,487	$1,611	$919	$499
	Public University				
	COA	$7,650	$7,969	$9,176	$10,042
	- EFC	0	0	0	0
	- Pell Grant	$3,143	$2,908	$2,616	$3,125
	- MAP Grant	$2,559	$2,891	$3,844	$4,128
	= Remaining Need	$1,948	$2,170	$2,716	$2,789
	Private Institutions				
	COA	$15,914	$17,845	$20,179	$22,658
	- EFC	0	0	0	0
	- Pell Grant	$3,143	$2,908	$2,616	$3,125
	- MAP Grant	$4,639	$3,986	$4,237	$4,530
	= Remaining Need	$8,132	$10,951	$13,326	$15,003
Second Quintile	Family Income	$28,754	$31,784	$30,708	$33,169
	Public 2-Year				
	COA	$4,691	$4,866	$4,986	$5,197
	- EFC	$880	$1,345	$1,271	$1,747
	- Pell Grant	$1,482	$1,393	$1,398	$1,375
	- MAP Grant	$1,184	$1,183	$636	$900
	= Remaining Need	$1,145	$945	$1,681	$1,175
	Public University				
	COA	$7,650	$7,969	$9,176	$10,042
	- EFC	$880	$1,345	$1,271	$1,747
	- Pell Grant	$1,482	$1,393	$1,398	$1,375
	- MAP Grant	$2,559	$2,891	$3,019	$3,150
	= Remaining Need	$2,729	$2,340	$3,488	$3,770
	Private Institutions				
	COA	$15,914	$17,845	$20,179	$22,658
	- EFC	$880	$1,345	$1,271	$1,747
	- Pell Grant	$1,482	$1,393	$1,398	$1,375
	- MAP Grant	$4,639	$3,986	$4,237	$4,530
	= Remaining Need	$8,913	$11,121	$13,273	$15,006

Quintile		FY1987	FY1992	FY1997	FY2000
Third (middle) Quintile	Family income	$43,790	$47,700	$48,696	$51,256
	Public 2-Year				
	COA	$4,691	$4,866	$4,986	$5,197
	- EFC	$3,110	$4,139	$4,706	$5,551
	- Pell Grant	0	0	0	0
	- MAP Grant	0	0	0	0
	= Remaining Need	$1,582	$727	$280	-$354
	Public University				
	COA	$7,650	$7,969	$9,176	$10,042
	- EFC	$3,110	$4,139	$4,706	$5,551
	- Pell Grant	0	0	0	0
	- MAP Grant	$673	$342	0	0
	= Remaining Need	$3,867	$3,488	$4,470	$4,491
	Private Institutions				
	COA	$15,914	$17,845	$20,179	$22,658
	- EFC	$3,110	$4,139	$4,706	$5,551
	- Pell Grant	0	0	0	0
	- MAP Grant	$4,639	$3,986	$4,237	$4,530
	= Remaining Need	$8,165	$9,720	$11,236	$12,577
Fourth Quintile	Family Income	$61,325	$66,524	$71,287	$73,222
	Public 2-Year				
	COA	$4,691	$4,866	$4,986	$5,197
	- EFC	$7,102	$9,353	$11,353	$12,152
	- Pell Grant	0	0	0	0
	- MAP Grant	0	0	0	0
	= Remaining Need	-$2,411	-$4,487	-$6,368	-$6,955
	Public University				
	COA	$7,650	$7,969	$9,176	$10,042
	- EFC	$7,102	$9,353	$11,353	$12,152
	- Pell Grant	0	0	0	0
	- MAP Grant	0	0	0	0
	= Remaining Need	$548	-$1,384	-$2,178	-$2,110
	Private Institutions				
	COA	$15,914	$17,845	$20,179	$22,658
	- EFC	$7,102	$9,353	$11,353	$12,152
	- Pell Grant	0	0	0	0
	- MAP Grant	0	0	0	0
	= Remaining Need	$8,811	$8,492	$8,825	$10,506
Fifth Quintile	Family Income	$103,879	$115,441	$135,995	$146,562

Remaining Financial Need

The ISAC data may be described by sector or family income quintile. We do both here. Note that all dollars are constant--inflation has been factored out of this analysis.

Public 4-year institutions. As shown in the chart on page 11, remaining financial need for dependent Illinois undergraduates has been greatest for students from the third quintile of family income. The income on which this was calculated was about $51,000 in FY2000. However, expressed as a proportion of family income, remaining need was greatest in the lowest family income quintile--18.5 percent in FY2000. It was 11.4 percent of income in the second quintile, and 8.8 percent in the third or middle quintile.

Remaining need has increased--in constant dollars--in each of the three lowest family income quintiles between FY1987 and FY2000. The real dollar increase was greatest in the second quintile--$1041. However, expressed as a percentage increase, it was greatest in the bottom family income quintile--43.2 percent.

By the 4th family income quintile, the expected family contribution exceeds the cost of attendance, and hence students are no longer needy.

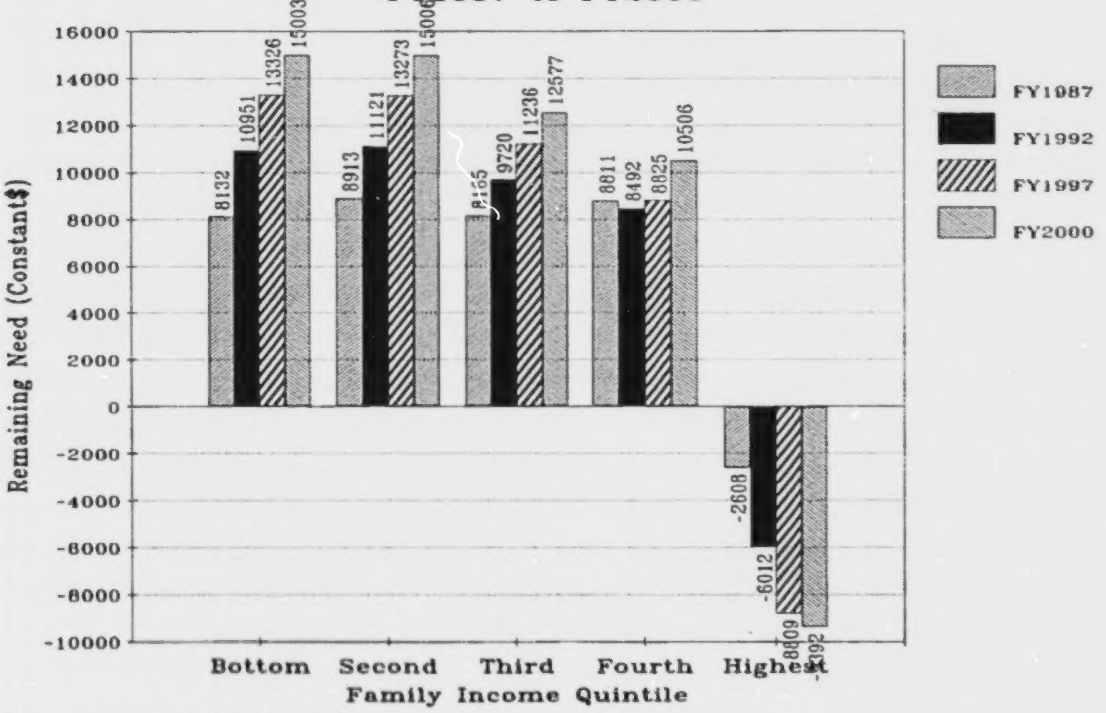
Public 2-year institutions. As shown in the chart on page 12, there is by FY2000 remaining financial need only in the two bottom quintiles of family income. And here remaining need is far less than it is in public or private 4-year institutions.

Remaining need in FY2000 was greatest in amount at the second family income quintile--$1175. In the bottom quintile it was $499. In both cases this was about 3.5 percent of income.

Private institutions. The chart on this page shows remaining need for dependent undergraduates at private colleges and universities. These numbers are very much larger than those for public 2-year colleges and public universities. Note that remaining need calculations for the two lowest family income quintiles are nearly identical, and only begin to decline in the third and fourth quintiles.

By the top quintile of family income, remaining need is always negative.

Remaining Financial Need (COA-EFC-Pell-Map) for Dependent Undergraduates at Illinois Private Institutions FY1987 to FY2000

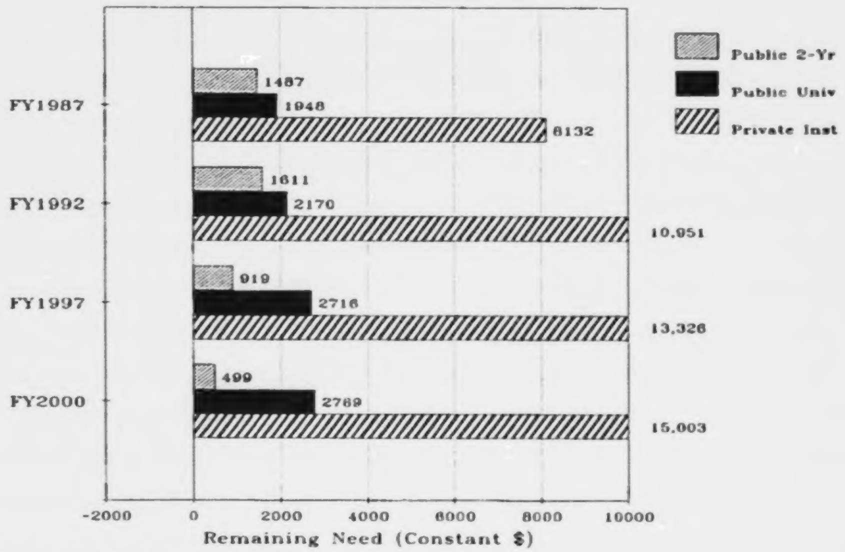


Source: Illinois Student Aid Commission

Important Trends and Patterns

The key family income quintiles are the bottom three, where financial need remains after EFC, Pell and MAP are deducted from costs of attendance. In the top two quintiles, remaining need is negative--students are no longer showing need--except in the fourth quintile in private institutions. In Illinois, remaining financial need has been highest and has increased in public universities and private institutions. Remaining need has been lowest in the community colleges. Furthermore, remaining need has actually declined in community colleges in the first and third quintiles. For those from lower and lower middle income families, the remaining need differential between 2-year and 4-year institutions has significantly increased the price attractiveness of community college education, and made 4-year colleges less affordable.

Trends in Remaining Financial Need for
Bottom Family Income Quintile by Institutional Type
FY1987 to FY2000



Source: Illinois Student Aid Commission

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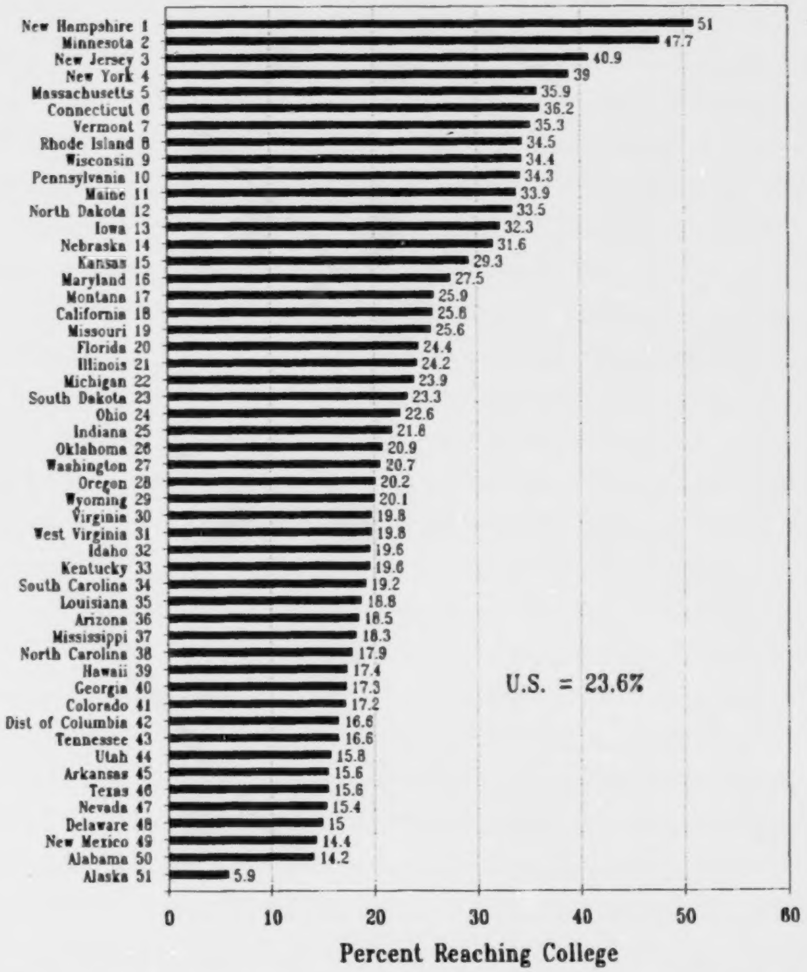
College Participation for Students from Low Income Families by State, 1992 to 1998



Chance for College for Students from Low Income Families
Average of State Rates 1992 through 1998

Students from low income families face many serious obstacles to higher education. These obstacles are not only limited family financial resources. They include academic, family, cultural, high-stakes testing, geographic, institutional, social and several other serious obstacles to educational performance, progress and attainment.

These obstacles for students from low income families sharply curtail high school graduation, college continuation for those who manage to graduate from high school, and bachelor's degree attainment for those who manage to enter college. By age 24, fewer than one student in twenty from the bottom quartile of family income (below about $25,000) will have earned a bachelor's degree from college, compared to over half for those born into the top quartile of family income.

By our calculations, only about one student in four from a low income family background makes it to any college at all between the ages of 18 and 24 years. Over the last seven years of available data for this calculation, there has been progress in reaching college for these students.

But across the states, both chances of reaching college, and progress over the last seven years, varies widely. For example, a student from a low income family in **New Hampshire** is nearly nine times more likely to reach college between 18 and 24 than is a student from a low income family in **Alaska**. Similarly, more progress has been made in **Connecticut, New Jersey, Vermont** and **Rhode Island** than in the rest of the states. In several states, the chance that a student from a low income family will reach college has actually declined between 1992 and 1998.

In this brief analysis, we examine

patterns and trends in the chance that a student from a low income family will reach college by age 24. Because this population is growing in most states, and because higher education is more important than it has ever been to private and social welfare, it behooves public policy makers to ponder these findings carefully.

This analysis of the data used here updates, extends, and revises our previous report on chance for college for students from low income families. These data appeared in the May 1999 issue of OPPORTUNITY (#83). Some of the previously published state data on participation in the National School Lunch Program were revised by the Department of Agriculture and an additional year of data became available. Also, we added the number of school children approved for reduced price school lunches to those used for free lunch counts. Thus the data used here is not comparable to that previously published in OPPORTUNITY. We believe these changes improve the accuracy of the data used in the analysis reported here.

The Data

For purposes of this calculation, chance for college is a simple ratio of low family income students enrolled in college to low family income students in the population.

Low family income college students are defined as dependent Pell Grant recipients. Dependent Pell Grant recipients are between the ages of 18 and 24 years, after which they are no longer dependent on their parents for financial support to attend college. Because we want to examine these data by state, we have used counts of dependent Pell Grant recipients by state of residence, not where the Pell recipient was enrolled. This enables us to capture data on the low family income residents of each state that left their state of residence to attend college in another state.

The data on dependent Pell Grant recipients by state of residence are compiled after each academic/fiscal year by the contractor for the federal Pell Grant program. These particular data are not published, but are available from the research files at the U.S. Department of Education in Washington, DC. We obtained the data used in this analysis from Steve Carter at (202) 502-7822.

The low income population from which these students are drawn is this same population cohort when they were enrolled in 4th through 9th grades and were approved for free or reduced-price school lunches through the National School Lunch Program. This is a federal program operated by the U.S. Department of Agriculture.

The school lunch program determines eligibility for subsidized school lunches according to family income. Students from families whose income falls below 130 percent of the federal poverty level (controlled for family size) are approved for free school lunches. Students from families with incomes of 130 to 185 percent of the federal poverty level are approved for reduced-price school lunches, and are charged by law $.40 for their school lunches.

The school lunch program data used in this analysis were prepared by the Food and Nutrition Service of the U.S. Department of Agriculture. We obtained the data used here from Jeffrey Derr at (703) 305-2605. The most recent data supplied to us by Derr are available as a free .pdf file from our website:

http://www.postsecondary.org

Click on the Spreadsheets button. You will need Adobe Acrobat Reader software installed on your computer to download, view and print these data.

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Mission Statement

This research letter is founded on two fundamental beliefs. First, sound public social policy requires accurate, current, independent, and focused information on the human condition. Second, education is essential to the development of human potential and resources for both private and public benefit. Therefore, the purpose of this research letter is to inform those who formulate, fund, and administer public policy and programs about the condition of and influences that affect postsecondary education opportunity for all Americans.

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Chance for College

In 1998-99, 27.5 percent of the age 18 to 24 year old cohort of persons from low income families in the United States were enrolled in college.

Expressed another way, out of 5,841,395 people who had been eligible for free or reduced price school lunches when they were enrolled in 4th to 9th grades during the 1989-90 school year, 1,605,045 received Pell Grants as a result of their postsecondary education enrollment somewhere in the United States during the 1998-99 academic year. The resulting ratio is 27.5 percent.

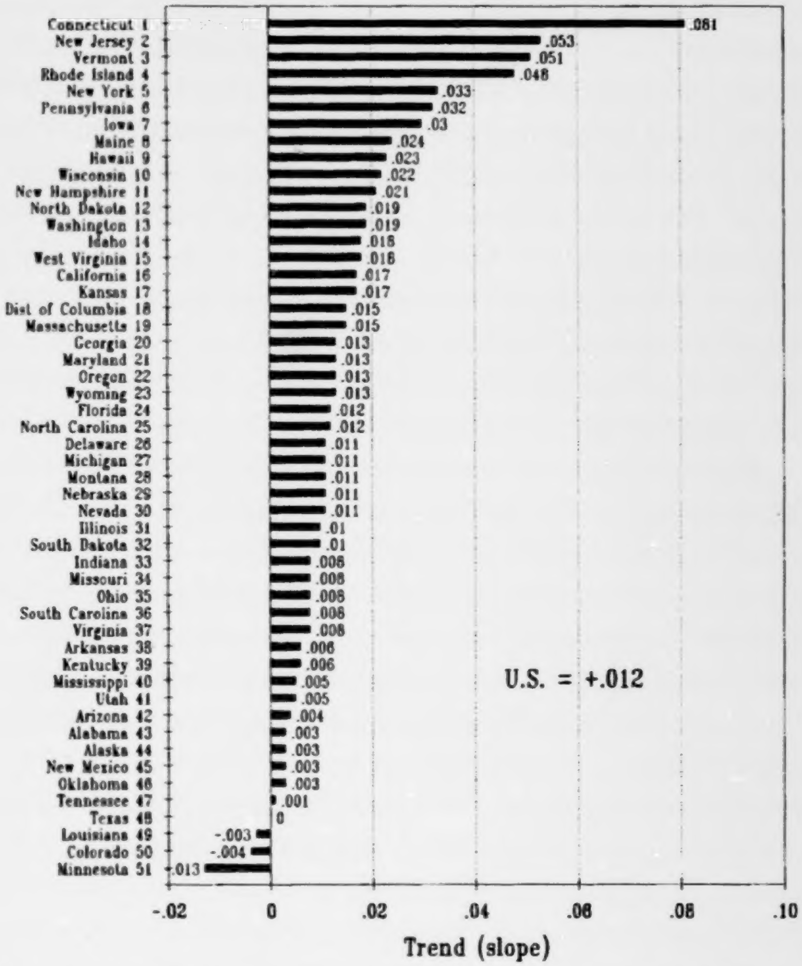
These data are available since the 1992-93 academic year. As shown in the chart on the next page, the proportion of children from low income families that reach college has increased for each of the last seven years. In 1992-93 20.0 percent reached college. That is, they both graduated from high school and were enrolled in college somewhere in the U.S. Since then the average annual increases have been about 1.1 percentage points each year during a period of strong economic expansion.

Chance for College by State

Due to fluctuations in the data used in this analysis, our state rates are averages for the last seven years, 1992-93 through 1998-99. We also capture the trend to these data for each state as the slope of the regression line through the seven observations for each state.

The seven year average state rates measuring chance for college for students from low income families ranged from 5.9 percent in **Alaska** to 51.0 percent in **New Hampshire**. This is nearly a nine times differential.

Trend in Chance for College for Students from Low Income Families, 1992 through 1998



Other states with notably high average college participation rates were **Minnesota** (47.7 percent), **New Jersey** (40.9 percent) and **New York** 39.0 percent).

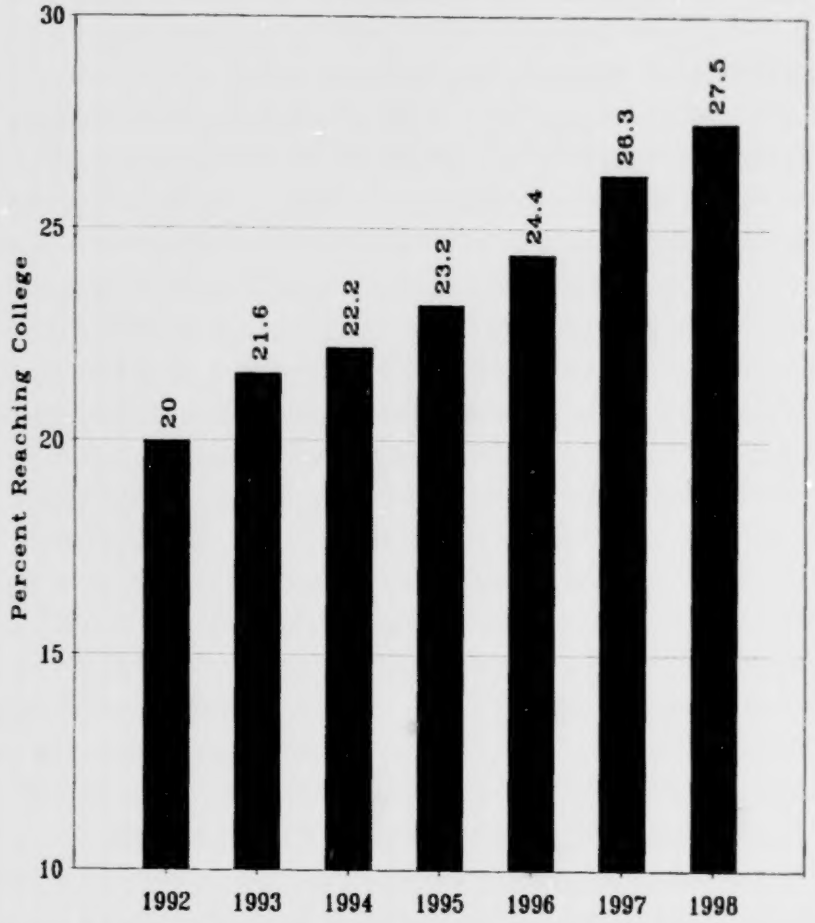
In quite a few states the chance that a student from a low income family will reach college is less than a third that of the national leaders. Besides Alaska, the most infamous state laggards over the last seven years were **Alabama, New Mexico, Delaware, Nevada, Texas, Arkansas** and **Utah.** Many more states are close behind this group with relatively very low college probabilities for students from low income families.

Trends

Nationally, the trend in these data over the last seven years is for substantial improvement in chance for college for students from low income families. And, in fact, in 47 of the 51 states (including DC) the trend has been upward.

The states having made the greatest gains (positive trend) between 1992-93 and 1998-99 are **Connecticut, New Jersey, Vermont and Rhode Island.**

College Participation Rates for
Students from Low Income Families
1992 to 1998



Other states with gains at about triple the national rate of gain were **New York, Pennsylvania** and **Iowa**.

One state--**Texas**--has no trend up or down to its data. Three states have negative trends to their data. These states are **Minnesota, Colorado** and **Louisiana**. In Minnesota's case, an early spike in the data contributes to the downward slope, and its average rate over the seven year period ranks it second among the states. In the other three states, chance for college for students from low income families are well below the national average and do not appear to be improving over the most recent seven years.

State Data Availability

The data used and calculated as a part of this analysis are available on our website. These data are in .pdf files that require (free) Adobe Acrobat Reader software to download, view and print. The Adobe website may be accessed through a link on our website. Complete download and installation instructions are on the Adobe website.

Those who may wish to explore the National School Lunch Program data from the U.S. Department of Agriculture for their state for the last seven years will find these data at:

http://www.postsecondary.org/spreadsheets.h

The data on chance for college for students from low income families is contained in an Excel spreadsheet on the same webpage. This spreadsheet combines data on dependent Pell Grant recipients by state of residency with National School Lunch program data.

Summary and Conclusions

This analysis has examined data by state to estimate chance for college for students who come from low income families. The period examined is for the years 1992-93 through 1998-99.

Students from low income families face a formidable array of obstacles to higher educational opportunity and success. Not all of these obstacles are financial, as several recent studies highlighting the importance of academic preparation for college have shown. Low family income is simply a proxy for the combined effects of many other adverse influences on higher educational opportunity for these students.

Despite the obstacles, about a quarter of these students reach college. To do so they must both graduate from high school and continue their educations in postsecondary education between the ages of 18 and 24. The other three quarters of this population don't make it, at least by this age, but may still do so at a later date in their lives.

Significant progress has been made nationally, and in most states, over the last seven years in college participation for these students. However, a student born into a low income family in some states has a far greater chance of reaching college by age 18 to 24 than does a similar student in another state.

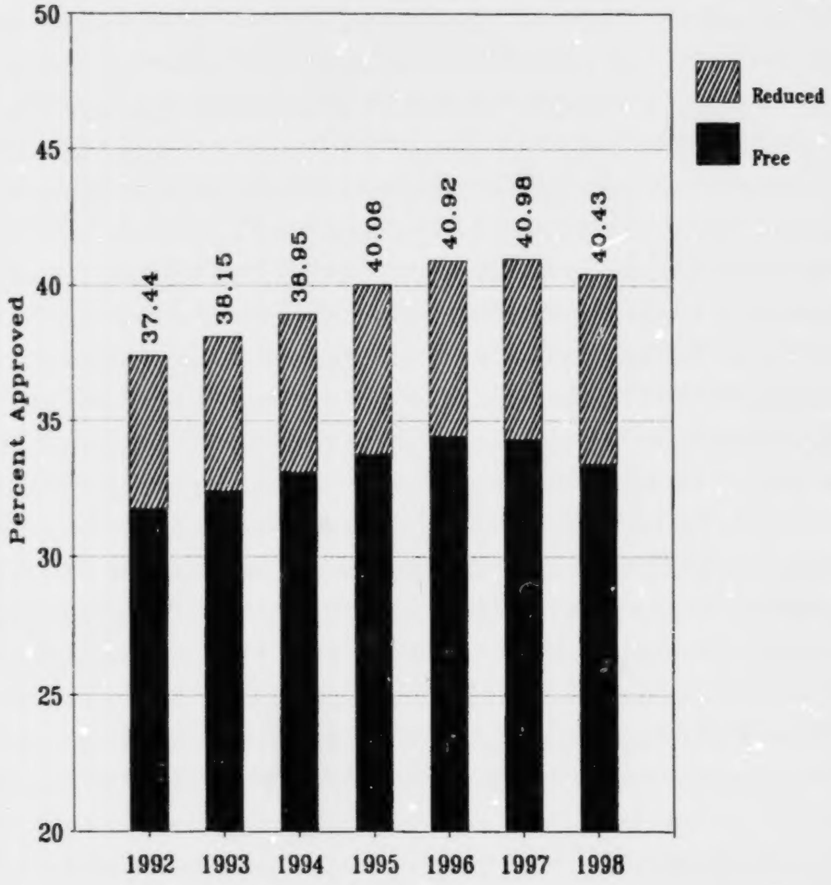
Chance for College for Students from Low Income Families by State

1992-93 to 1998-99

State	1992	1993	1994	Fall of: 1995	1996	1997	1998	Mean	Trend (Slope)
Alabama	13.6%	15.4%	13.6%	11.5%	13.1%	15.5%	16.5%	14.2%	0.003
Alaska	4.5%	5.5%	6.5%	5.4%	5.5%	6.6%	7.3%	5.9%	0.003
Arizona	16.3%	14.3%	23.3%	18.5%	20.0%	19.1%	18.3%	18.5%	0.004
Arkansas	16.0%	13.6%	14.0%	14.6%	14.8%	16.0%	20.0%	15.6%	0.006
California	16.5%	24.1%	25.3%	28.4%	30.0%	28.1%	28.4%	25.8%	0.017
Colorado	16.4%	21.8%	18.9%	14.0%	15.8%	16.4%	17.3%	17.2%	-0.004
Connecticut	17.2%	25.1%	24.3%	31.8%	30.1%	51.3%	73.3%	36.2%	0.081
Delaware	14.1%	12.4%	11.1%	10.4%	21.9%	18.3%	17.0%	15.0%	0.011
District of Columbia	12.2%	12.3%	13.0%	20.6%	19.4%	20.3%	18.4%	16.6%	0.015
Florida	20.7%	20.0%	23.0%	27.7%	26.4%	25.0%	27.9%	24.4%	0.012
Georgia	13.1%	15.3%	14.6%	18.3%	19.0%	20.9%	19.9%	17.3%	0.013
Hawaii	9.0%	15.0%	14.2%	16.1%	22.9%	21.4%	23.6%	17.4%	0.023
Idaho	16.4%	16.6%	17.5%	15.3%	19.6%	25.0%	26.9%	19.6%	0.018
Illinois	23.4%	22.2%	20.5%	24.3%	23.2%	27.5%	28.6%	24.2%	0.010
Indiana	18.9%	21.1%	21.6%	19.6%	22.9%	27.4%	21.4%	21.8%	0.008
Iowa	26.9%	28.6%	22.8%	31.7%	28.2%	45.4%	42.2%	32.3%	0.030
Kansas	24.5%	29.0%	22.2%	27.4%	33.6%	38.6%	29.7%	29.3%	0.017
Kentucky	20.0%	17.8%	17.2%	18.7%	19.8%	20.5%	22.8%	19.6%	0.006
Louisiana	18.7%	19.2%	22.1%	18.1%	16.0%	18.3%	18.9%	18.8%	-0.003
Maine	26.4%	27.7%	31.9%	38.8%	35.5%	33.3%	43.9%	33.9%	0.024
Maryland	23.9%	25.4%	26.3%	26.4%	28.7%	29.0%	32.9%	27.5%	0.013
Massachusetts	32.0%	33.0%	32.7%	34.0%	40.0%	40.0%	39.3%	35.9%	0.015
Michigan	21.6%	21.2%	22.4%	22.2%	26.6%	27.7%	26.5%	23.9%	0.011
Minnesota	48.4%	63.3%	42.4%	41.4%	45.8%	44.8%	47.5%	47.7%	-0.013
Mississippi	17.4%	18.1%	17.7%	16.5%	18.5%	17.7%	22.0%	18.3%	0.005
Missouri	23.6%	25.1%	25.2%	23.6%	24.4%	28.0%	29.0%	25.6%	0.008
Montana	23.8%	25.4%	23.3%	23.4%	23.9%	31.2%	30.5%	25.9%	0.011
Nebraska	29.5%	30.9%	26.5%	29.2%	33.9%	39.3%	31.9%	31.6%	0.011
Nevada	15.4%	12.6%	9.2%	17.5%	14.6%	20.0%	18.8%	15.4%	0.011
New Hampshire	33.3%	41.3%	47.6%	79.8%	63.7%	47.6%	43.6%	51.0%	0.021
New Jersey	24.5%	30.1%	37.7%	37.6%	43.5%	62.8%	50.2%	40.9%	0.053
New Mexico	12.3%	15.4%	15.6%	13.1%	14.7%	13.1%	17.0%	14.4%	0.003
New York	29.6%	32.4%	33.4%	42.0%	40.6%	45.3%	49.5%	39.0%	0.033
North Carolina	15.2%	16.2%	16.4%	16.3%	17.7%	20.8%	22.9%	17.9%	0.012
North Dakota	33.0%	28.1%	26.2%	31.3%	37.1%	39.9%	39.1%	33.5%	0.019
Ohio	22.0%	21.4%	21.5%	20.7%	21.3%	23.3%	28.3%	22.6%	0.008
Oklahoma	19.5%	23.3%	19.1%	21.3%	19.3%	19.9%	24.1%	20.9%	0.003
Oregon	14.3%	19.6%	20.6%	20.1%	17.7%	25.2%	23.7%	20.2%	0.013
Pennsylvania	24.0%	23.7%	35.0%	37.5%	37.3%	40.7%	41.7%	34.3%	0.032
Rhode Island	18.3%	23.8%	34.2%	35.0%	42.3%	36.1%	52.0%	34.5%	0.048
South Carolina	15.3%	18.5%	20.2%	17.8%	20.3%	21.7%	20.7%	19.2%	0.008
South Dakota	21.5%	24.4%	19.9%	20.3%	22.4%	25.9%	28.7%	23.3%	0.010
Tennessee	16.5%	17.4%	15.8%	14.9%	16.9%	17.0%	17.5%	16.6%	0.001
Texas	16.5%	15.6%	15.4%	14.7%	15.2%	15.5%	16.8%	15.6%	0.000
Utah	13.8%	17.0%	16.1%	12.9%	15.3%	15.8%	19.9%	15.8%	0.005
Vermont	17.9%	25.3%	36.2%	31.4%	38.8%	47.1%	50.3%	35.3%	0.051
Virginia	15.9%	18.9%	19.3%	20.5%	21.4%	21.1%	21.7%	19.8%	0.008
Washington	16.9%	17.7%	17.1%	16.7%	23.0%	27.6%	25.9%	20.7%	0.019
West Virginia	16.6%	17.9%	16.5%	16.5%	18.1%	24.3%	28.8%	19.8%	0.018
Wisconsin	36.8%	23.7%	29.7%	31.2%	32.1%	44.4%	42.8%	34.4%	0.022
Wyoming	17.9%	19.6%	17.1%	13.9%	21.6%	27.0%	23.8%	20.1%	0.013
Total	20.0%	21.6%	22.2%	23.2%	24.4%	26.3%	27.5%	23.6%	0.012

The National School Lunch Program and Children in Low Income Families FY1992 to FY1999

National School Lunch Program Approved Participation Rate for Free and Reduced Price Lunches 1992 to 1998



Source: U.S. Dept. of Agriculture, Food & Nutrition Service

The freshman class headed for college this fall was born in 1982. The college freshman class of 2017 was born last year. Higher education demographers project future higher education enrollments in large part by following cohorts of babies through their years of school enrollment up to high school graduation, then into and through college, to graduation and labor force entry. Nearly all of those who will enter higher education over the next 18 years have already been born. Those born more than five years ago are all currently enrolled in K-12 education and are headed for higher education as this is written.

A growing share of the children in the K-12 pipeline headed for higher education live in low income or outright poor families. Demographic analysis of National School Lunch Program data over time and across states shows that:

- Over the last seven years, the proportion of children enrolled in K-12 education qualifying for free or reduced-price school lunches has increased from 37.4 to 40.4 percent.
- During the 1998-99 school year, the proportion of K-12 enrollment qualifying for free or reduced-price school lunches ranged from 66.2 percent in the **District of Columbia** to 17.6 percent in **New Hampshire**.
- Over the last seven years, between 1992-93 and 1998-99, the proportion of K-12 school children qualifying for free or reduced-price school lunches has increased in 46 of the 50 states plus DC. The largest increases were in **Hawaii** (+15.0%), **Alaska** (+13.3%), **District of Columbia** (+9.6%), **Tennessee** (+7.4%), and **Illinois** (+7.4%).
- Over the last seven years, the proportion of K-12 students qualifying for free or reduced-price school lunches declined in just five states. These states were **South Dakota** (-15.3%), **Colorado** (-5.7%), **Utah** (-1.7%), **Arizona** (-1.0%), and **Pennsylvania** (-0.3%).

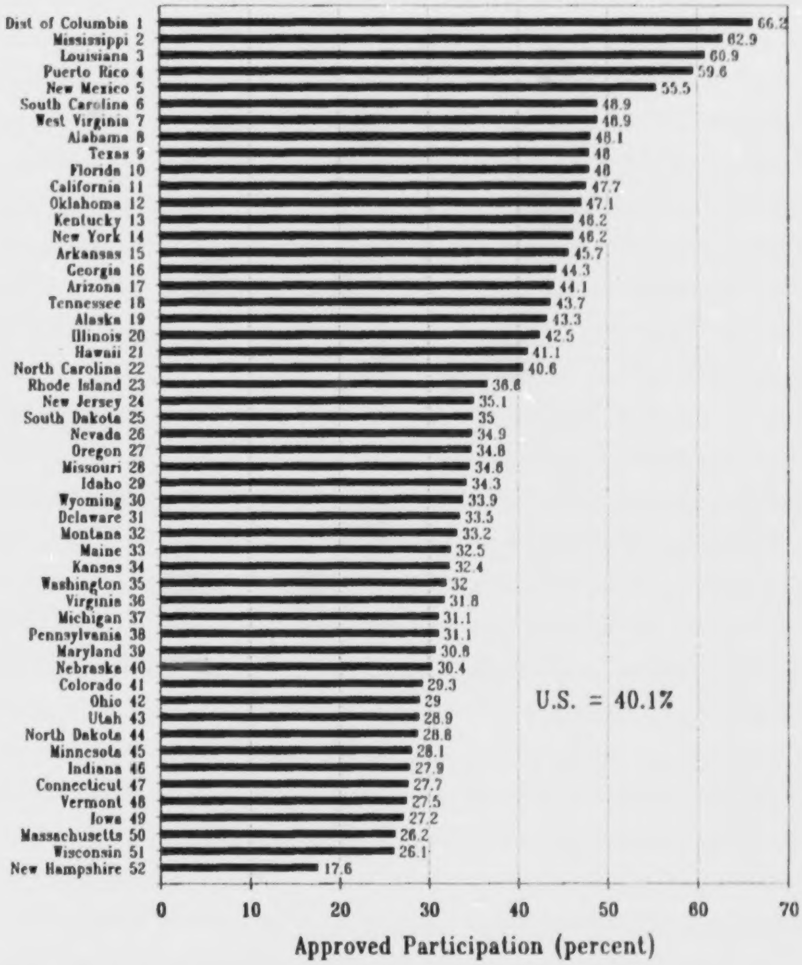
These data suggest that most states should be actively planning and preparing to accommodate a larger share of college students from poor and low-income family backgrounds in the future. This preparation should occur not only because a growing share of students come from low-income and poor families, but also because escalating labor force needs for better trained and educated workers means that a greater share of the population will need to be educated at higher levels to participate in the economic opportunities that the United States has to offer.

Other needs for educating a growing share of the population include the self-sufficiency expectations of current welfare policy, and the need to maximize the number of productive workers when the largest number of Americans will be retired and drawing Social Security benefits. Each and all of these foreseeable needs call for significant expansion of human capital investment through higher education.

The National School Lunch Program

The 1946 National School Lunch Act was enacted as a "measure of national security, to safeguard the health and well-being of the Nation's children." During World War II, many young men called to military service by the draft were rejected due to conditions resulting from serious nutritional deficiencies. The National School Lunch Program was enacted to assure that children would receive one healthy meal every school day. The current version of the program was first used in the 1992-93 school year (FY1992). This version has now accumulated seven years worth of experience and data.

National School Lunch Program Approved Participation Rate by State, 1998-99



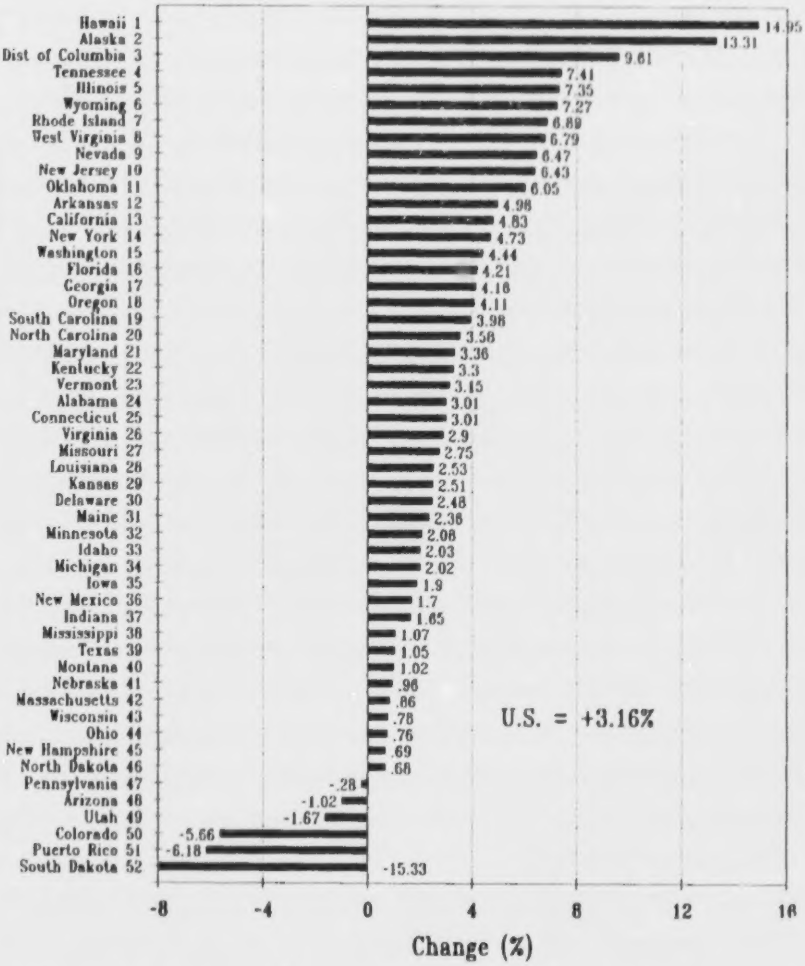
The National School Lunch Program reimburses schools for the provision of nutritious meals to school children. These meals are designed to provide one-third or more of the Recommended Dietary Allowance for key nutrients. Meals were provided to 26 million students in 1998. Over 15 million children receive free or reduced-price lunches school lunches each day. About 93,000 schools participate of the lunch program. About 95 percent of all school children are enrolled in these participating schools. For FY1997 the federal government spent $5.5 billion on the National School Lunch Program.

Eligibility for the free or reduced-price benefit is determined by household income. To receive free school lunches, the student must come from a family whose income falls below 130 percent of the federal poverty level, adjusted for family size. To receive reduced-price school lunches, a student must come from a family whose income falls below 185 percent of the federal poverty level. By law reduced-price school lunches cannot cost more than $.40 apiece. Students from families receiving food stamps or TANF assistance are categorically eligible for free meals. School boards need to apply to their state education agency to initiate a lunch program.

Data

School children in the 50 states plus the District of Columbia may participate in the National School Lunch Program. In addition, school children in Puerto Rico, Guam and the Virgin Islands participate, as do children in schools operated by the

Change in School Lunch Program Approval Rates 1992-93 to 1998-99



Department of Defense.

For the 1998-99 school year, there were 47.7 million school children enrolled in schools in the eligible jurisdictions. Of the total, 15.9 million applied for and were approved for free school lunches, and an additional 3.4 million applied and were approved for reduced-price lunches. Of those approved, 13.0 million school children actually received free school lunches, and an additional 2.4 million received reduced-price school lunches.

The state data used in this analysis were prepared for OPPORTUNITY by Jeffrey Derr of the U.S. Department of Agriculture's Food and Nutrition Service. These data span the years FY1992 through FY1999, or the academic years 1992-93 through 1998-99. The seven spreadsheets prepared by Derr are available for downloading from our website at:

http://www.postsecondary.org

Click on the Spreadsheets button. The user will need Adobe Acrobat Reader software installed on his/her computer to download, view and print these spreadsheets. This free software may be downloaded and installed through a link on the OPPORTUNITY website to Adobe's website.

National Trends

Over the last seven fiscal years of the current version of the National School Lunch Program, the proportion of school children approved for free or reduced-price school lunches has grown, as shown in the first chart.

- The proportion approved for free lunches has grown from 31.7 percent in 1992-93, to a peak of 34.4 percent in 1996-97, and has since declined to 33.4 percent in 1998-99.
- The proportion of school children approved for reduced-price school lunches has increased steadily over the last seven years, from 5.7 percent in 1992-93 to 7.1 percent in 1998-99.
- As a result, the proportion of school children approved for free and reduced price lunches increased from 37.4 percent in 1992-93, to a peak of 41.0 percent in 1997-98, then declined to 40.4 percent in 1998-99.

The number of school children approved for free school lunches increased from 13.8 million in 1992-93 to 15.9 million in 1998-99. The number of school children approved for reduced-price school lunches increased from 2.5 million to 3.4 million during this same period.

Patterns Across the States

There is an extraordinarily wide variation across the states in the proportion of school children approved for free and reduced price school lunches, as shown in the second chart. More than 60 percent of the school children in the **District of Columbia, Mississippi and Louisiana**, and more than half in **New Mexico** were approved for free or reduced-price school lunches in 1998-99.

The states with the largest *number* of students approved for free or reduced-price school lunches in 1998-99 were **California** (2.77 million), **Texas** (1.95 million), **New York** (1.43 million) and **Florida** (1.12 million).

At the other end of the scale, in **New Hampshire**, just 17.6 percent of the school children were approved for the subsidized school lunch program. Other states with notably low free or reduced price lunch program approval rates were **Wisconsin, Massachusetts, Iowa, Vermont, Connecticut, Indiana and Minnesota.**

Obviously, these rates are related to state poverty rates since subsidized school lunch eligibility is also related to poverty rates. The correlation between 1998-99 school lunch approval rates and average state poverty rates for 1996-98 was +.845.

Trends across the States

Between 1992-93 and 1998-99, the proportion of school children approved for free or reduced-price school lunches increased in all but five of the 50 states plus the District of Columbia. The largest increases in the proportion of poor and low-income children were in **Hawaii** (+15.0%), **Alaska** (+13.3%), **District of Columbia** (+9.6%), **Tennessee** (+7.4%), **Illinois** (+7.4%), **Wyoming** (+7.3%), **Rhode Island** (+6.9%), **West Virginia** (+6.8%), **Nevada** (+6.5%), **New Jersey** (+6.4%) and **Oklahoma** (+6.1%).

Over this seven year period, the largest increases in the numbers of school children approved for free or reduced price school lunches increased in all but two states. The states with the largest increase in the number of school children approved for free or reduced price school lunches were **California** (+601 thousand), **Texas** (+302 thousand), **Florida** (+279 thousand), **New York** (+253 thousand), **Illinois** (+175 thousand) and **Georgia** (+138 thousand).

The five states where the proportion of school children approved for free or reduced-price school lunches declined were **South Dakota** (-15.3%), **Colorado** (-5.7%), **Utah** (-1.7%), **Arizona** (-1.0%), and **Pennsylvania** (-0.3%). The two states where the number of school children approved for free or reduced price school lunches declined during this time period were **North and South Dakota.**

Conclusions

About 40 percent of the school children enrolled in elementary and secondary education are raised in families with incomes so low that federal policy has chosen to address their basic nutritional needs. They live in families with incomes below 185 percent of the federal poverty level.

The federal policy response to their nutritional needs has been the National School Lunch Program, which was enacted in 1946. The current version of that program has been in place since FFY1992.

We have used approval data from this program to quantify the numbers of students from low income families in the K-12 educational pipeline that are headed for higher education. Our analysis has looked at these data nationally and by state over the last seven years under the current program.

Our analysis finds that the number of children from low income families, and their share of the total number of school children, has grown over the last seven years. The number has grown by 3 million. The share of all school children has grown by 3.1 percent. The numbers have grown the most in the large southern states. The rates have grown the most in the two non-contiguous states of Hawaii and Alaska.

The economy that these children who are now living in low and moderate income families will live and work in as adults may properly described as the human capital economy. Just as it has been since 1973, this economy will be driven increasingly by the labor force productivity of very well educated and trained workers. Only those who have acquired the education and training to become productive workers in this economy will enjoy high living standards.

Those who end their educations at high school or less--which is the most obvious fate of children from low income families--will not enjoy the prosperity of their era. They will lack the preparation in K-12 education, and the refinement of their education and training in postsecondary education, that will maximize their productive potential.

Being poor while surrounded by inaccessible rich abundance and prosperity cannot help stabilize society. The instability that has already resulted (e.g. the highest incarceration rates in the world), will almost certainly grow worse.

Preparing all children for the human capital economy remains the constant challenge of social policy, particularly government policy. Preparing children from low income families is an even greater challenge. And preparing a growing share of school children who come from these low income family backgrounds will require a level of government focus and effort unmatched in our history.

The only greater cost and challenge will come from the consequences of ignoring the human capitalization challenge when we could do something about it.

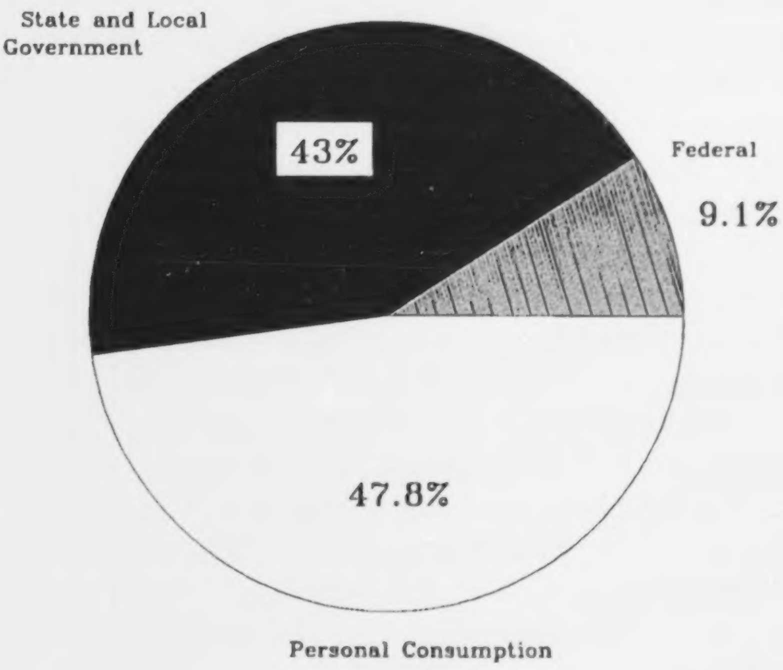
Refinancing Higher Education: The National Income and Product Accounts

The National Income and Product Accounts (NIPA) measure economic activity in the United States. They tabulate the value and composition of output and the distribution of incomes generated in its production. The NIPA include estimates of gross domestic product (GDP), national income, personal income and corporate profits. These accounts have been compiled since 1929, with increasing specificity, and are subject to regular revision and updating.

Included in these NIPA activities are the expenditures of the federal government, state and local governments, and families on higher education. The compilation of these data permit important comparisons of higher education in the national economy at different times, and the relative contributions of the three funding sources to the total higher education effort.

The most recent revisions, updates and extensions of the NIPA provide an opportunity to review the continuous refinancing of higher education in the United States. This refinancing includes both the level of combined efforts to invest in the country's human capital infrastructure on which prosperity rides, as well as who is shirking and who is shouldering respective shares of responsibility for the total human capital investment effort.

Revenues by Source for Higher Education 1998



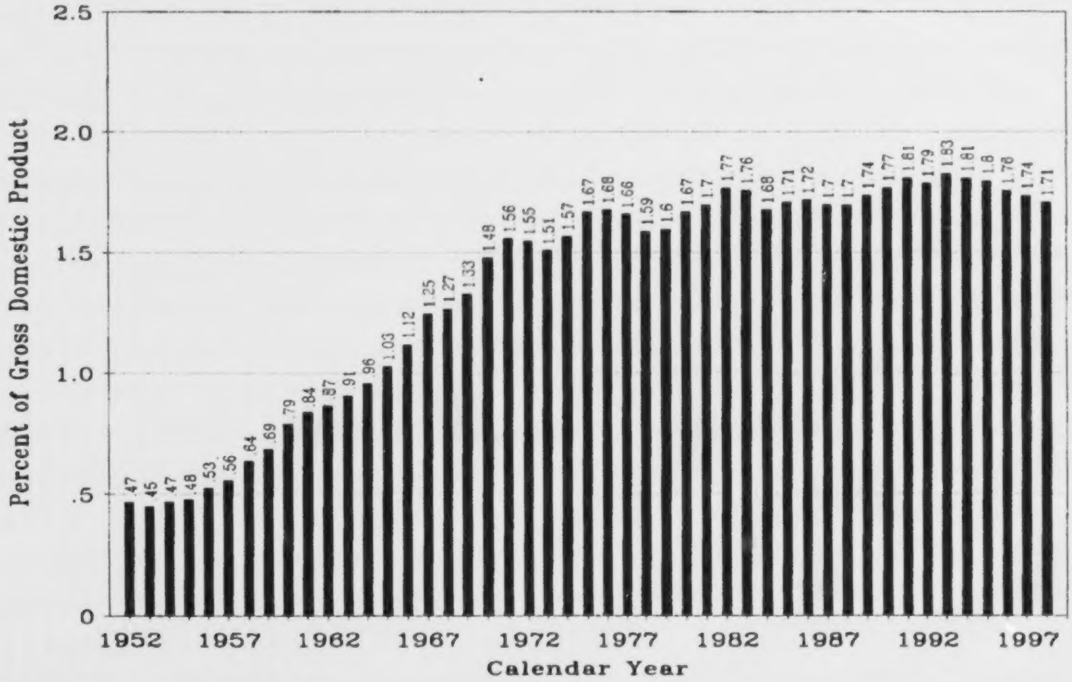
Total: $150.100,000,000

Our analysis of these data lead to several profoundly important insights into the level and sources of effort at investment in the country's human capital infrastructure:

- Higher education's share of GDP has been slipping since 1993. This is the first time since 1952 that the combined efforts of federal, state and local taxpayers and families has produced five consecutive years of declining shares of GDP devoted to higher education investments.
- While the federal government has maintained its share of the higher education investment responsibility, states have not. Since 1975 the state (and local) government share of the total effort has been shrinking, from about 55 percent of the total in the late 1970s to 43 percent by 1998.
- Students and families have had to absorb a growing share of the costs of higher education since the late 1970s, and thus their share of the total effort has grown from about 35 percent then to about 48 percent in the late 1990s.

In this analysis we revise and update our previous analysis of the NIPA data in light of several recent revisions and updates to the NIPA data itself. While our basic findings are not altered by the recent NIPA revisions, in fact they clarify the central issue of declining relative social investment in traditional higher education. As we continue to move further into the human capital

Higher Education's Share of Gross Domestic Product 1952 to 1998



Source: National Income and Product Accounts.

economy, the sharp reductions in state investment in higher education have been only partially offset by increasing tuition charges to students and their families. And as these data show, the proportion of personal income spent on higher education has now begun to shrink as well.

In OPPORTUNITY we are primarily concerned about who gets to college, who doesn't, and why such differences exist and why they are important. The study of educational opportunity inevitably leads to the study of higher education finance because underrepresented populations usually require outside (government) intervention.

The context for this concern is this: Higher education costs money.

- *Capacity* costs money.
- *Quality* costs money.
- *Affordability* costs money.

Usually, its the little guy who gets squeezed out when funding is inadequate to meet these needs.

As social and private investment in higher education is curtailed, so too is the ability of higher education to contribute to the human capital economy curtailed.

The Data

The National Income and Product Accounts measure the market value of goods and services produced each year in the nation's economy. Data are compiled by the Bureau of Economic Analysis, U.S. Department of Commerce.

The component data of the NIPA are published piecemeal in tables at different times, and in different places, which is frustrating for data analysts. They are also being revised every few years. Therefore it is important to seek the most recent version of the schedules used for any given analysis.

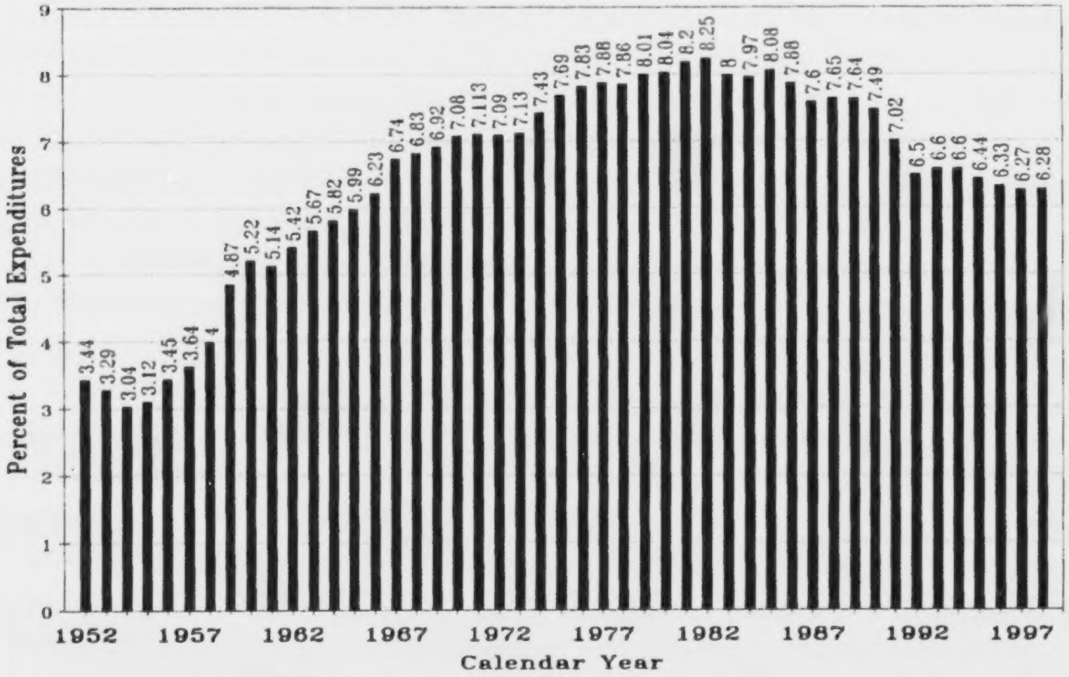
Most of the NIPA tables are published as they are prepared in the monthly *Survey of Current Business*. But they are also available at different times and in various forms on the BEA's website at:

http://www.bea.doc.gov

The key definitions employed by the Bureau of Economic Analysis regarding higher education finance data are as follows:

1) Expenditures for public and private higher education are combined. This is especially important in reviewing federal government expenditures and personal consumption data.
2) Personal consumption is the revenues received by institutions for tuition and fees.

Higher Education's Share of Expenditures of State and Local Governments 1952 to 1998



Source: National Income and Product Accounts

3) Federal expenditures are mainly for student financial aid and incidentally for direct institutional support for public institutions located in the District of Columbia. The student financial aid lines include expenditures for Pell Grants, federally funded campus based programs and guaranteed loan interest subsidies and other loan program costs.
4) State and local government expenditures are appropriated sums for institutional operations.

The higher education expenditures data have been stripped of the many auxiliary financial interests of higher education such as bookstores, dormitories, food service, externally-funded research, athletic programs, hospitals, extension services, etc. What is left describes the most central activities of higher education: the education of students, internally funded research and community service.

Total Funding

In 1998 expenditures for higher education totaled $150.1 billion. This was up from $144.7 billion in 1997 and $137.3 billion in 1996. It was well above the $1.7 billion total spent in 1952 when the NIPA time series for higher education begins.

Of the 1998 total:

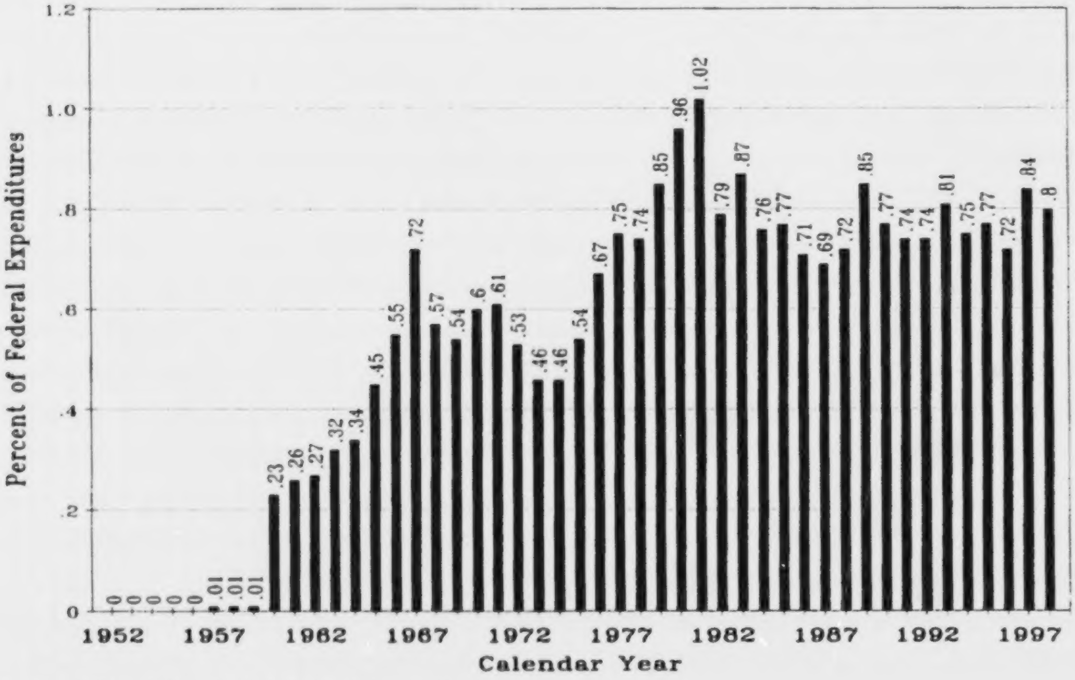
- $71.8 billion or 47.8 percent of the total was provided through the tuitions paid by students and their families,
- $13.7 billion or 9.1 percent of the total was provided by the federal government, and
- $64.6 billion or 43.0 percent of the total was provided by state (and local) governments.

Expressed as a proportion of Gross Domestic Product, in 1998 the combined expenditures of federal, state and local governments, plus the tuitions paid by students and their families constituted 1.71 percent of GDP. This was down from 1.74 percent of GDP in 1997 and a peak of 1.83 percent of GDP in 1993.

As the chart on page 11 shows, higher education's share of GDP increased steadily and significantly from less than half of one percent of GDP in the mid 1950s to nearly 1.7 percent by the mid 1970s. Since then there has been virtually no growth in higher education's share of GDP.

Between 1993 and 1998, the share of GDP spent on higher education declined by 0.12 percent. This does not sound like much, but it converts to $10.2 billion. That is to say, if higher education had maintained the same

Higher Education's Share of
Expenditures of the Federal Government
1952 to 1998



Source: National Income and Product Accounts.

share of GDP in 1998 that it had in 1993, instead of spending $150.1 billion higher education would have spent $160.3 billion, or 6.8 percent more than it did.

This cutback in higher education's share of GDP is striking in light of higher education's direct contribution to personal income growth, and indirect contribution to growth in labor force productivity and growth in GDP. More of this later.

State and Local Government Funding

In 1998 state and local governments spent $64.6 billion on higher education. This was up from $61.5 billion in 1997 and $59.4 billion in 1996. Obviously, most of this came from state government although 25 states have a local property tax contribution to community college funding as well.

The chart on page 12 shows the proportion of state and local government expenditures that were allocated to higher education between 1952 and 1998. This share increased from a low of 3 percent in 1954 to a peak of 8.25 percent in 1982. For 1998 this had dropped off to 6.28 percent.

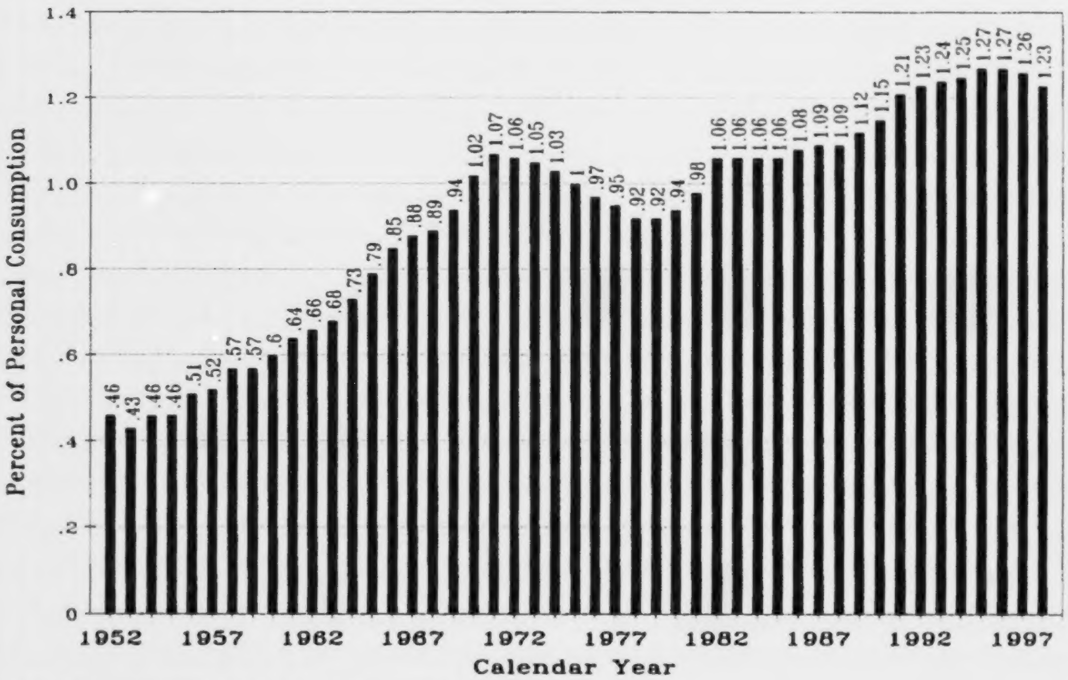
The obvious slackards in higher education finance/investment have been the states over the last several decades. States have chosen to divert state resources into health care for poor people and corrections, at the expense of higher education and just about every other area of state budgets.

If state and local governments had spent their 1982 share on higher education in 1998, they would have spent $84.9 billion rather than the $64.6 billion that they did spend.

Federal Government Funding

In 1998 the federal government spent $13.7 billion on higher education, nearly all in the form of financial aid to students. As the chart on this page shows, for the last twenty years the federal government has been a stable partner in the financing of higher education.

Up until the launch of the Soviet satellite Sputnick in October of 1957, the federal government's interests in higher education were expressed in the several Morrill land grant acts, and the Servicemens Readjustment Act of 1944 (GI Bill). But international competition changed that. From quite



Higher Education's Share of
Personal Consumption Expenditures
1952 to 1998

Source: National Income and Product Accounts.

modest beginnings the federal government's role in financing higher education through student financial assistance expanded to a peak of about one percent of federal expenditures in 1981. Since 1982 the proportion of the federal budget spent on higher education has hovered quite consistently around 0.8 percent.

Personal Consumption

In 1998 students and their families spent $71.8 billion on tuition payments to higher education institutions. This was up from $69.2 billion in 1997 and $44.0 billion at the beginning of the decade.

As states have reduced their tax efforts in support of higher education, tuition charges to students and their families have been increased to make up the shortfall. This is apparent in the chart on this page. Since 1952, the share of personal income spent on higher education has increased, from less than half of one percent in the mid 1950s, to a peak of 1.27 percent of personal consumption in 1995 and 1996.

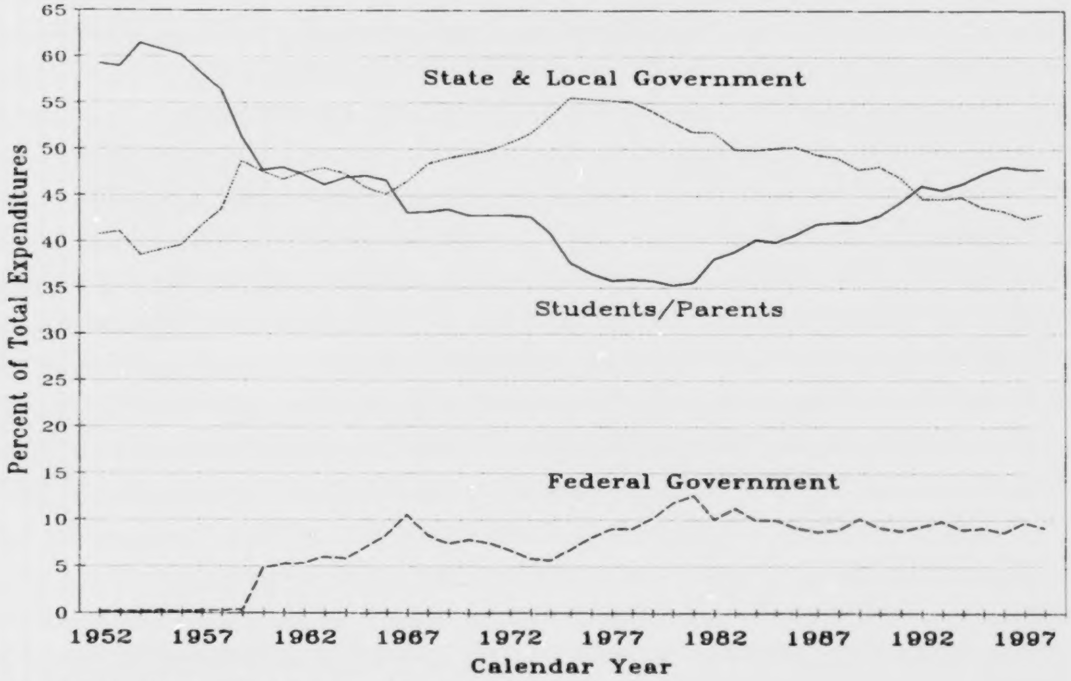
Notably, the share of personal expenditures allocated to higher education declined in 1997 and 1998. Between 1996 and 1998, personal income increased faster than did tuition payments by students and their families to colleges. This 0.04 percent loss between 1996 and 1998 converts to $2.3 billion.

It is too early to know whether this is a new trend in higher education finance. The chart on this page shows that tuition payments declined during the 1970s when higher education quite consciously sought to control annual price increases. Perhaps the recent decline in the proportion of personal consumption spent on higher education reflects a similar recent price-containment effort. In 1997 the National Commission on the Cost of Higher Education was created to explore the causes of beyond-inflation price increases in higher education. While the Commission's final report sputtered on cost-containment recommendations, in fact congressional attention to the problem may have warned institutions to moderate their price increases. What we know did happen is that personal consumption expenditures have grown faster than institutional charges in 1997 and 1998.

Cost Sharing

As the chart on page 10 makes clear, the costs of higher education for students are shared in the United States between families, federal taxpayers, and state/local taxpayers.

Distribution of Responsibilities for
Financing Higher Education
1952 to 1998



Source: National Income and Product Accounts.

Because the NIPA provide data for each year from 1952 through 1998, there are about 45 years worth of data available to examine shifts in this relationship.

The chart on this page shows the share of revenues of higher education provided by each of the major financing partners, for each year between 1952 and 1998. The story, for each partner, goes as follows.

Families. There are two broad era here. The first period spans the years between 1952 and 1980. During this period, the share of higher education revenues derived from students and their parents declined from about 60 percent to a low of 35.3 percent. During this period taxpayers--both federal and state/local--picked up the difference, and public higher education institutions were created and expanded at a rapid rate.

The second period begins in 1980 and extends to the present. Now the costs of running higher education are being shifted back on to families. The share of higher education revenues provided by families has increased from 35.3 percent in 1980 to 47.8 percent in 1998.

State/local government taxpayers. Here too there are two broad eras of state finance of higher education. During the first era, from 1952 to 1976, the share of higher education's revenues provided by state (and local) governments increased from about 40 percent in the mid 1950s to a peak of 55.5 percent in 1975.

The second era spans from 1975 through 1998, when the state/local share of the total has declined to 43.0 percent by 1998. As our many previous analyses have shown, states have diverted their resources from higher education (and other state functions) to finance health care for poor people (Medicaid) and to build and fill prisons.

Federal taxpayers. Under NIPA accounting, three broad era of federal involvement in higher education finance are apparent in the above chart. Between 1952 and 1960, the federal commitment was essentially zero. Then between 1960 and 1981 the federal share increased to a peak of 12.6 percent. Since 1981 the federal share has hovered around 9 percent of the total.

Cost-shifting. This long time series shows huge shifts back-and-forth in who pays for higher education in the United States. The state commitment to expand capacity and assume operational finance responsibility for the capacity that it created is apparent up until about 1975. The federal commitment to financial aid is apparent between 1960 and 1981. Families were the beneficiaries of these government initiatives.

But families are also affected when taxpayer interest wanes, as it clearly has at the state level since about 1980. Because higher education still costs real money (for capacity, quality and affordability), when states reduce their commitment, public institutions have raised tuition revenues to offset the state funding shortfalls. This has now occurred in every one of the 50 states over the last twenty years.

Compared to 1980, by 1998 state/local governments had reduced their share of higher education revenues by $14.8 billion. The federal government had reduced its share by $4.0 billion. That left families to increase their share by $18.8 billion.

Policy Issues

There are two serious policy issues that result from this examination of higher education finance.

The first issue regards *level of investment* in higher education. The United states started moving into the human capital economy about 1973. Since then the welfare of persons, families, cities, states and the country have been increasingly determined by the amount of postsecondary education and training in the workforce. There is now good evidence that we are under-investing in higher education, with apparent surpluses of workers with high school educations and less, and shortages of workers with college educations or more. The shirking by states of their historic role in financing higher education is primarily to blame for this skilled workforce shortage.

The second issue regards the *form of investment* in higher education. It is not enough to throw money at higher education. To gain the greatest return on the investment, investments must be targeted to maximize yield. Econometric studies of student demand for higher education have shown that students from low to moderate family income backgrounds are most in need of, and responsive to, public investments targeted on their enrollment decisions. That requires government allocations targeted on the needy. The federal government, until recently, has maintained this clear focus through need-based financial aid. But states generally have not focused their investment on those who need it, and hence much of each state's investment goes where it is not needed. Those who do need it have been left out, and their enrollment opportunities have clearly suffered.

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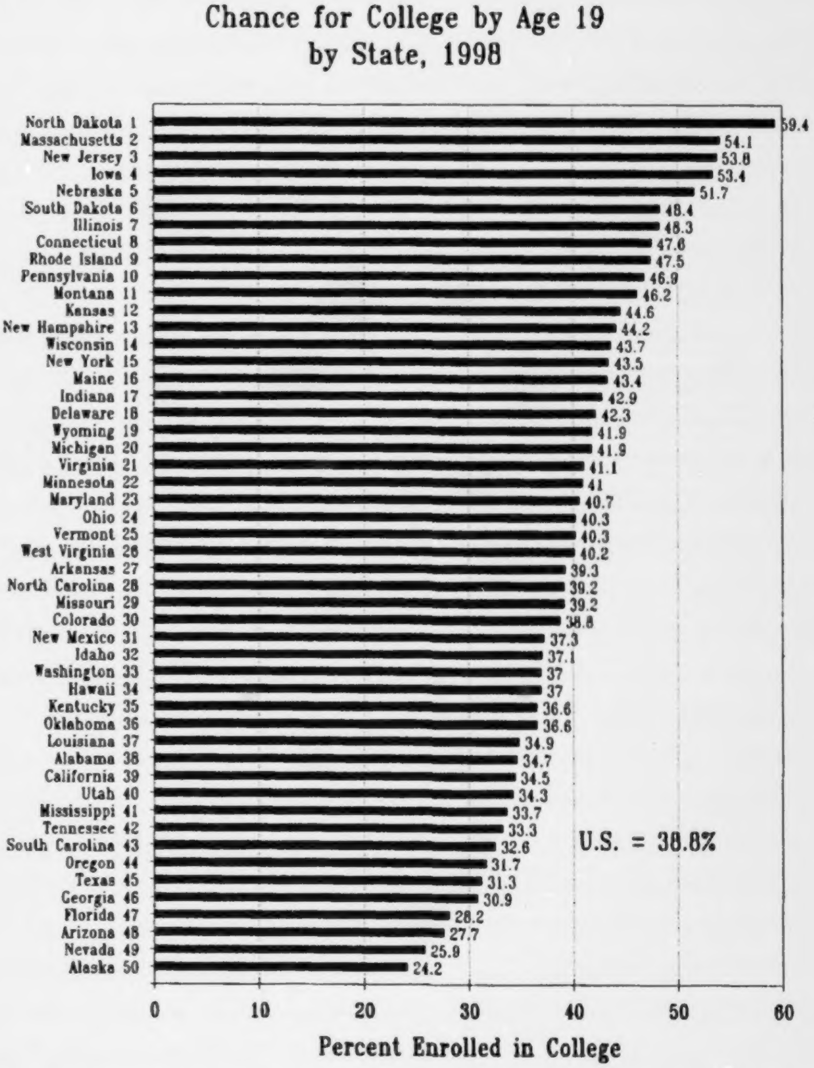
Chance for College by Age 19 by State in 1998

In the fall of 1998, 38.8 percent of all 1997-98 19 year olds were enrolled in college somewhere in the United States immediately after high school graduation. This rate was down from the 1996 rate of 39.7 percent, and down further from the record peak of 40.0 percent reached in 1994.

To reach college immediately after high school, these students must have both graduated from high school then enrolled in college the following fall. For this class, 67.8 percent of the fall 1994 9th graders became high school graduates in 1997-98. Then 57.2 percent of the high school graduates reached college somewhere in the United States by October of 1998. The product of the high school graduation rate times the college continuation rates yields the percent reaching college by age 19.

In 1998 the chance for college by state ranged widely. In **North Dakota** 59.4 percent of the 19 year olds reached college. North Dakota also leads all states in our previous analyses in 1992, 1994 and 1996. In each of these years, North Dakota lead the second ranking state by a wide margin. It achieves this ranking due to relatively very high public high school graduation rates, *and* college continuation rates for those who graduate from high school.



Other states where more than half of the 19 year olds reached college in 1998 included **Massachusetts, New Jersey, Iowa** and **Nebraska.**

At the other end of the scale, in **Alaska**, just 24.2 percent reached college. Until 1998 **Nevada** anchored the bottom of the ranking in 1996 and 1994. In 1998 Nevada ranked 49th. Both states have relatively very low public high school graduation rates and low college continuation rates for those who graduate from high school.

Other states where a 19 year old's chance of being enrolled in college were less than 30 percent were **Arizona and Florida**.

The Human Capital Economy

The United States is now nearly 30 years into the human capital economy. Since the early 1970s, income and the living standards that income supports have been steadily reallocated according to educational attainment. Those with more education are succeeding, while those with least education are falling farther behind.

This education/income relationship holds for individuals, families, households, cities, states and the country as a whole.

- For individuals, in 1998 a male with a high school diploma had an average income of $30,318, compared to $57,801 for another with a bachelor's degree. Over a 40 year working lifetime, the male with the bachelor's degree will receive about $1.1 million more than will the high school graduate. For females the 40-year income differential is about $0.6 million.
- For families, in 1998 a family headed by a person with a high school diploma had income that averaged $48,434, compared to a family headed by a person with a bachelor's degree at $85,423. Over 40 years this amounts to about $1.5 million.
- For cities too, per capita personal income increases with the proportion of those 25 and over that hold a bachelor's degree. Each one percent gain in the proportion of this population added about 1.7 percent or $499 to city per capita personal income in 1995.
- For states also, per capita personal income increases with the proportion of those 25 and over that have a bachelor's degree. In 1998 each one percent gain in the proportion of this population with a bachelor's degree added $693 or 2.7 percent to state per capita personal income in 1998.
- For the country, federal income taxes are paid on income under modest progressive tax rates. In 1996, almost exactly half of all households (49.9 percent) were headed by persons with a high school education or less. These households earned 35.5 percent of all income and paid 29.4 percent of all federal income taxes. Conversely, 50.1 percent of all households were headed by persons with at least some college. These households earned 64.5 percent of all income and paid 70.6 percent of all federal income taxes.

Clearly, beginning with individuals, income and its living standard correlates are driven by educational attainment. This is the human capital economy, where more is nearly always better, much better.

The Data

Chance for college by age 19 is the product of the high school graduation rate and the proportion of high school graduates that enroll in college in the fall following high school graduation.

The following analysis of chance for college by age 19 by state is driven entirely by data collected from states by the National Center for Education Statistics (NCES). Because of the definitions, peculiarities and limitations of these data, each calculation is described in detail here.

Public high school graduation rate. The public high school graduation rate used here is the number of regular public high school graduates for the 1997-98 school year, divided by the number of fall 1994 ninth grade students enrolled in public high schools. These data are collected by

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Mission Statement

This research letter is founded on two fundamental beliefs. First, sound public social policy requires accurate, current, independent, and focused information on the human condition. Second, education is essential to the development of human potential and resources for both private and public benefit. Therefore, the purpose of this research letter is to inform those who formulate, fund, and administer public policy and programs about the condition of and influences that affect postsecondary education opportunity for all Americans.

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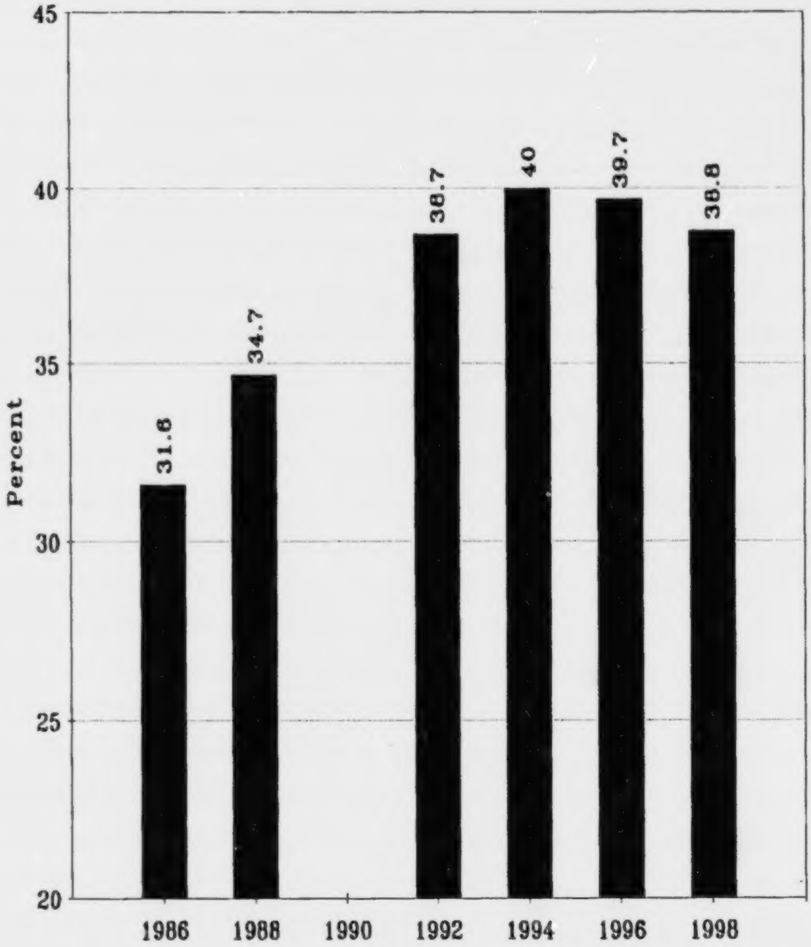
NCES from state education agencies. They are reported in the *Digest of Education Statistics* and other NCES publications. All of the public high school graduation rate data used in this analysis was provided by Dr. Vance Grant of NCES.

NCES does not collect graded school enrollment data for non-public schools by state. Thus, it is not possible to calculate a high school graduation rate that combines public and non-public school ninth grade and high school graduate data.

Nationally, about 10 percent of high school graduates are produced by private high schools. However, this proportion is much higher in some states. The states where 15 percent or more of the high school graduates are produced by private high schools are **Delaware** (20.9%), **Connecticut** (19.7%), **Louisiana** (18.1%), **Massachusetts** (18.0%), **Hawaii** (17.1%), **New York** (16.9%), **Vermont** (16.4%), **Rhode Island** (15.8%), **Pennsylvania** (15.2%) and **New Hampshire** (15.0%). These data are for 1995-96.

Thus, especially in these states the public high school graduation rate may understate the combined public and private high school graduation rate. But barring graded private school enrollment data, we have no way of knowing how or to what degree.

Chance for College by Age 19
1986 to 1998



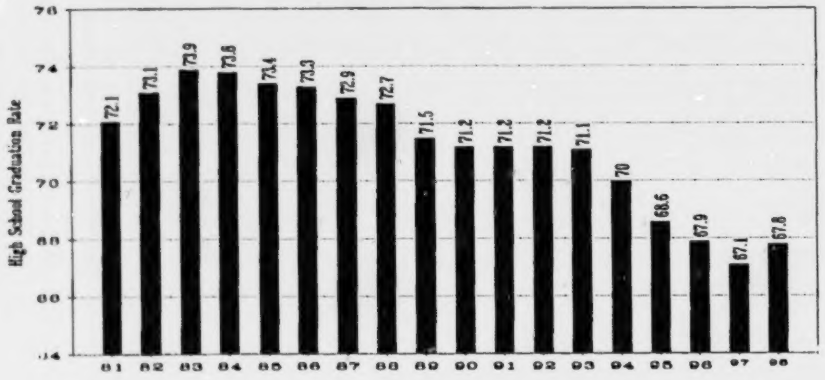
College continuation rate. The rate at which each state's public *and* private high school graduates continue their educations in college in the fall following their high school graduation is the college continuation rate (CCR). There are two major components to this ratio.

The numerator of the ratio is the number of fall 1998 first time college freshmen from each state who were enrolled in college anywhere in the United States. These data are collected in each even-numbered year in the fall IPEDS enrollment survey. In this analysis we only use the reported data for those first-time freshmen who graduated from high school in the previous 12 months. We have chosen these data because we believe that state of residency is most closely tied to the state where students graduated from high school. Young adults are noted for their geographic mobility and we want to relate college freshmen by state of residency to the state data on high school graduates.

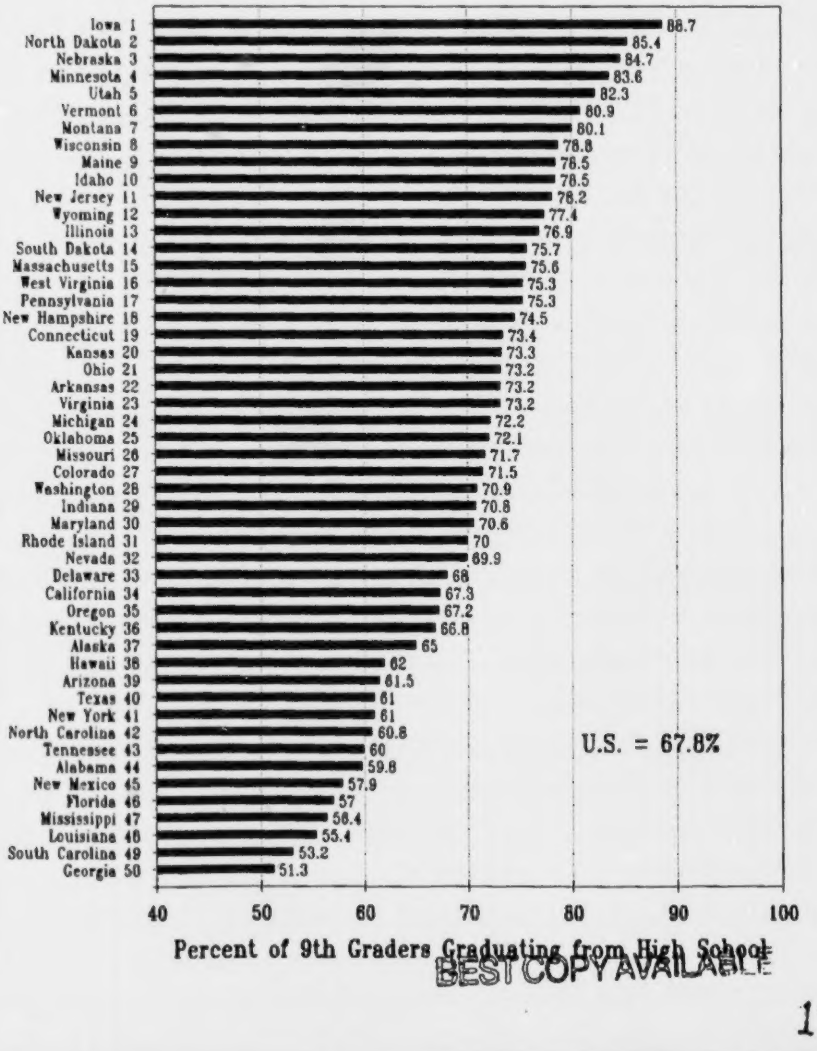
The 1998 data that were collected as a part of the fall 1998 IPEDS enrollment survey have not been published due to serious current budget problems at NCES. However, Samuel Barbett of NCES very generously processed the data file to produce state reports on residence and migration of fall 1998 first-time freshmen who were recent high school graduates.

The denominator of the college continuation rate combines both public and private high school graduates by state. We use the same public high school graduate numbers used to calculate public high school graduation

Public High School Graduation Rates 1981 to 1998



Public High School Graduation Rates by State, 1998



rates. To this we add NCES estimates of private high school graduates by state. These estimates, unfortunately, are prepared for odd-numbered years only. Therefore we have used the NCES published estimates of private high school graduates by state for 1996-97.

All of the data used in this analysis for each state are available in an Excel spreadsheet in .pdf format posted to our website under the Spreadsheets button. This spreadsheet contains all of the data from our previous analyses for 1986, 1988, 1992, 1994 and 1996, as well as the 1998 analysis reported here. The downloader will require free Adobe Acrobat Reader software to download, view and print this spreadsheet. This software is accessible through a link from our website.

Public High School Graduation Rate

In 1997-98 the public high school graduation rate was 67.8 percent. That is to say, out of 3,604,115 fall 1994 ninth grade students, 2,443,955 became regular high school graduates in 1997-98. 1,160,160 of those who were enrolled in ninth grade did not graduate four years later. This is one out of three ninth graders.

The 1998 public high school graduation rate was up from the previous year when the rate was 67.1 percent. However, the 1997 to 1998 increase was the first since 1982 to 1983. Between 1983 and 1997, the public high school graduation rate declined from 73.9 to 67.1 percent--a matter of great significance but unmentioned in public policy discussions.

Across the states, the public high school graduation rate in 1998 ranged from a low of 51.3 percent in Georgia to a high of 88.7 percent in Iowa.

Nearly all of the states with the lowest public high school graduation rates were southern states. Besides Georgia, the states with the lowest public high school graduation rates in 1998 were **South Carolina, Louisiana, Mississippi, Florida, New Mexico, Alabama, Tennessee, North Carolina, New York and Texas.**

Nearly all of the states with the highest public high school graduation rates in 1998 were northern states. Besides Iowa, the remaining states with the highest graduation rates were **North Dakota, Nebraska, Minnesota, Utah, Vermont, Montana, Wisconsin, Maine and Idaho.**

Between 1983 and 1998, the national public high school graduation rate declined substantially. However, the graduation rate actually increased over this period five states. These states and their (modest) gains were **Maine** (+2.4 percent), **Iowa** (+1.4 percent), **Massachusetts** (+1.0 percent), **Utah** (+0.7 percent), and **Wyoming** (+0.2 percent). In addition, the high school graduation rate did not decrease in **Vermont.**

However, in the remaining 44 states, the public high school graduation rate declined between 1983 and 1998. By far the greatest decline in the graduation rate occurred in **Hawaii,** where the graduation rate declined by 21.1 percentage points, from 83.2 to 62.0 percent.

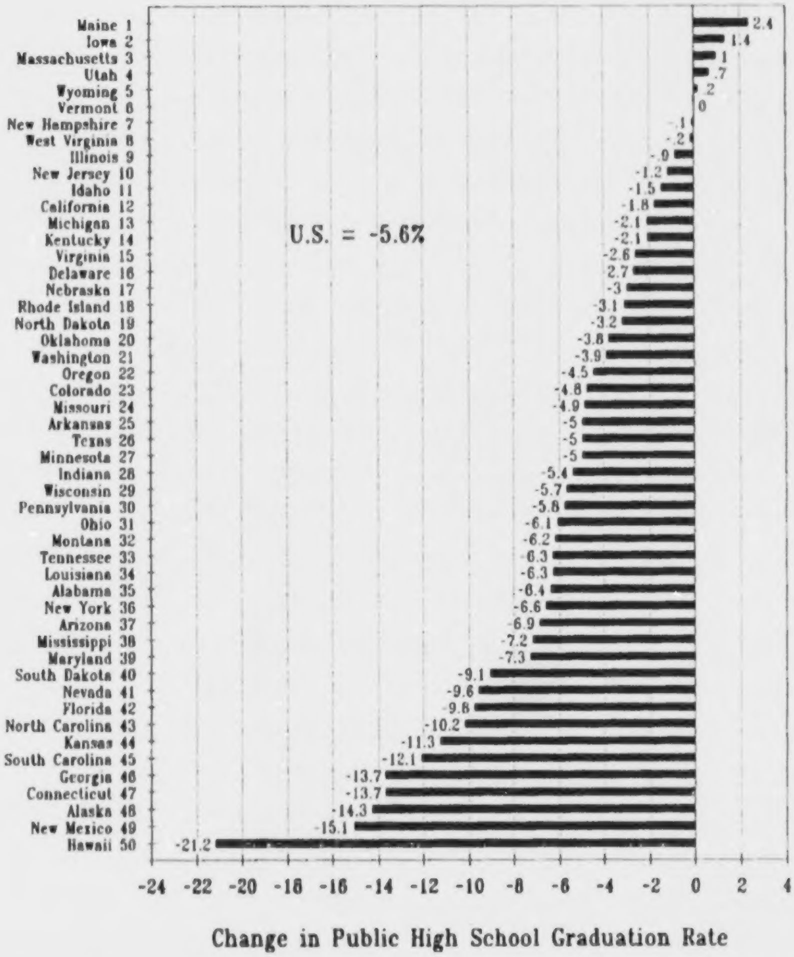
Other states with extraordinarily large declines in their public high school graduation rates were **New Mexico, Alaska, Connecticut, Georgia, South Carolina, Kansas, North Carolina, Florida, Nevada and South Dakota.**

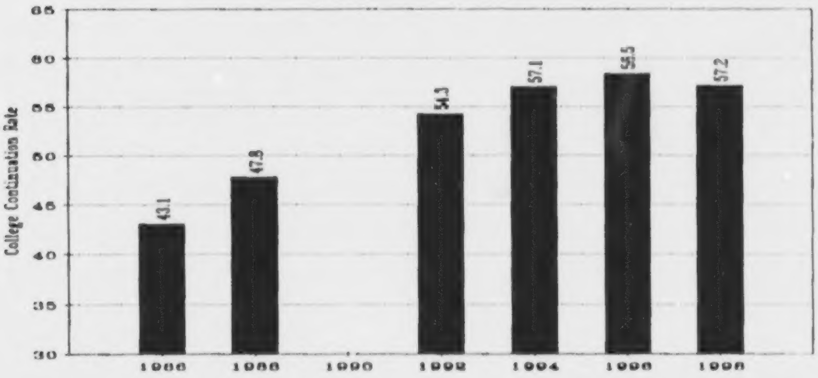
We have examined this phenomenon of declining public high school graduation rates in a past issue of OPPORTUNITY (see "Tracking High School Graduation, 1970 to 1998," September 1999, #87). Our analyses point to several conclusions:

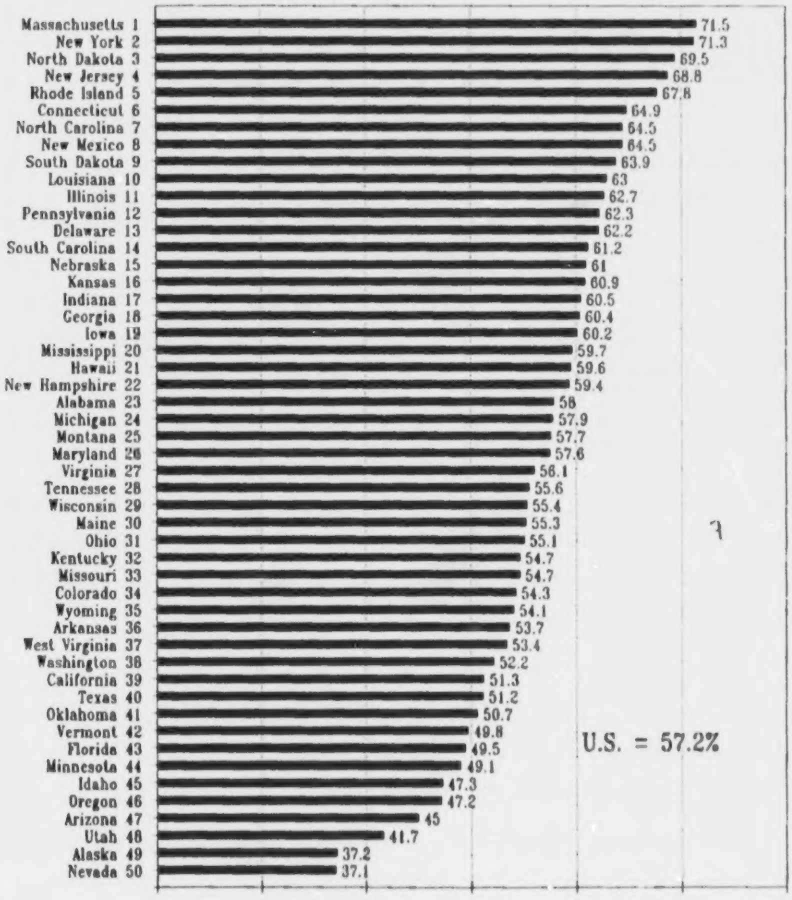
- The decline begins after 1983 when the report *A Nation at Risk* highlighted the need to strengthen the high school curriculum to better prepare children for college and the skill requirements of the world of work.
- The decline accelerates after 1993 when the current federal mantra of "high expectations and standards" is promoted by the current Secretary of Education Richard Riley.
- The decline in regular high school graduation is offset by large increases in the number of high school dropouts who obtain high school "equivalency" by passing the GED test.

The Census Bureau mistakenly classifies these high school dropouts who pass the GED as high school graduate equivalents, badly obscuring a profoundly serious and deteriorating situation of regular public high school graduation. Policy makers are falsely led to believe that nearly 90 percent of all students eventually graduate from high school. This simply is not true.

Change in Public High School Graduation Rates by State Between 1983 and 1998




College Continuation Rates
1986 to 1998


College Continuation Rate
by State, 1998

College Continuation Rate

In 1998, 57.2 percent of the 1997-98 public *and private* high school graduates in the United States were enrolled in college in the fall of 1998. That is, out of the 2,693,500 public and 252,322 private high school graduates for 1998, 1,541,038 made it into a college by the fall immediately after high school graduation.

The 1998 college continuation rate of 57.2 percent is down from the 1996 rate of 58.5 percent and about the same as the 1994 rate of 57.1 percent. These rates, however, are well above the 1986 rate of 43.1 percent, the 1998 rate of 47.8 percent, and the 1992 rate of 54.3 percent. (Note: The 1990 rate is not available because NCES did not release fall 1990 residence and migration data due to seriously incomplete reports from two states.)

The college continuation rate varied widely across the states in 1998, as it always does. The CCR ranged from a low of 37.1 percent in **Nevada** to a high of 71.5 percent in **Massachusetts**.

At the high end of the range, besides Massachusetts, **New York**'s college continuation rate nearly matched that of Massachusetts, at 71.3 percent. Other states with college continuation rates of more than 60 percent in 1998 included: **North Dakota, New Jersey, Rhode Island, Connecticut, North Carolina, New Mexico, South Dakota, Louisiana, Illinois, Pennsylvania, Delaware, South Carolina, Nebraska, Kansas, Indiana, Georgia** and **Iowa.**

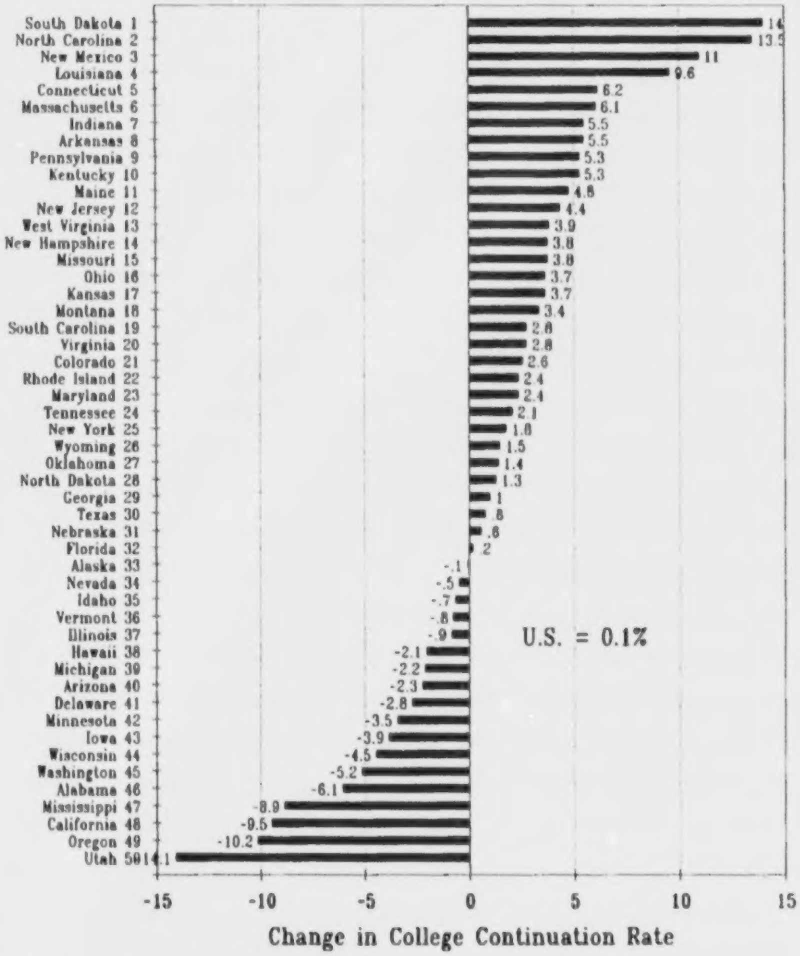
Besides Nevada, **Alaska** had an equivalently low CCR at 37.2 percent. Other states with college continuation rates between 40 and 50 percent included **Utah, Arizona, Oregon, Idaho, Minnesota, Florida** and **Vermont.**

Between 1994 and 1998 the college continuation rate for all 50 states changed barely at all, rising from 57.1 to 57.2 percent. However, within states there were very large changes in college continuation rates over the last four years. At the extremes, **South Dakota**'s CCR increased by 14 percentage points, while **Utah**'s rate declined by 14.1 percentage points.

Besides South Dakota, the states with the largest gains in college continuation rates between 1994 and 1998 were **North Carolina, New Mexico and Louisiana**. In all, 32 states had increases in their continuation rates during this period.

Besides Utah, other states with noticeably large decreases in their college continuation rates between 1994 and 1998 were **Oregon, California and Mississippi**. Eighteen states experienced declines in their continuation rates over the last four years.

Change in College Continuation Rates by State Between 1994 and 1998



Chance for College by Age 19

In the fall of 1998, 38.8 percent of the 19 year olds in the United States were enrolled in college. This was down from 39.7 percent in 1996 and the peak reach in 1994 of 40.0 percent.

Up until 1994, the chance for college by age 19 had tended sharply upward. In 1986--the first year NCES collected the fall residence and migration data on college freshmen--31.6 percent had reached college.

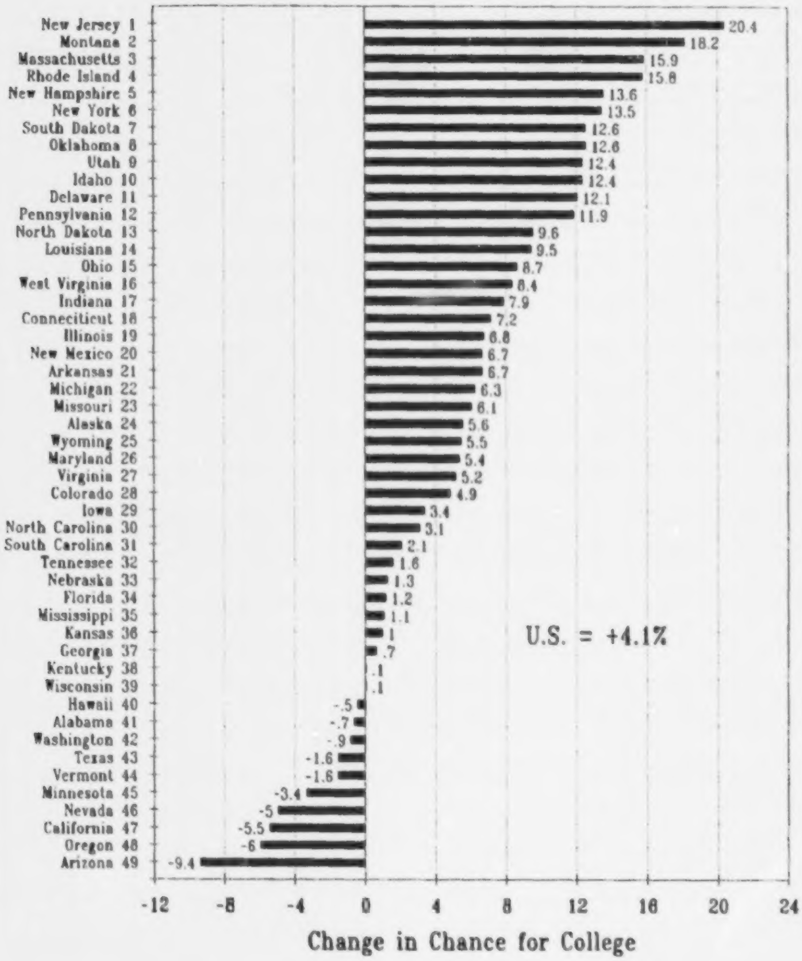
Data caution: In the early years of the IPEDS Residence and migration survey, some institutions did not complete this portion of the IPEDS enrollment survey. The states with apparent problems in the data were Maine (1986, 1988), Colorado (1986), Hawaii (1986), Idaho (1988) and perhaps others.

Across the states, as shown in the chart on page 1, the chance for college ranged from 24.2 percent in **Alaska** to 59.4 percent in **North Dakota**.

At the top of this state ranking, **North Dakota** owns first place. In addition to being first in 1998 (59.4 percent), North Dakota was first in 1996 (63.2 percent), first in 1994 (59.8 percent), first in 1992 (57.6 percent), third in 1988 (49.7 percent) and first in 1986 (48.5 percent). In most years North Dakota's margin over second place is very wide--its no contest. It holds this lofty position by virtue of having both a very high public high school graduation rate (2nd in 1998 at 85.4 percent) *and* a very high college continuation rate for those who graduate from high school (3rd in 1998 at 69.5 percent). Life might lack a few distractions in North Dakota (boring?), but this apparently provides students an opportunity to focus on formal schooling.

Most of the other states in the top ten appear there year after year as well. For the last four years--1992, 1994, 1996 and 1998--the top five have always been **North Dakota, Massachusetts, New Jersey, Iowa**

Change in Chance for College by Age 19 by State Between 1988 and 1998



and **Nebraska**. They merely trade places from year to year. **Illinois** and **Rhode Island** have always been in the next group of five states. In most years **Wisconsin** has been in the top ten states.

Similarly, at the bottom of this ranking, **Alaska** and **Nevada** regularly complete for last place. Alaska was dead last in 1998 (24.2 percent), 49th in 1996 (26.2 percent), 49th in 1994 (26.5 percent) and 47th in 1992 29.2 percent. Nevada was 49th in 1998 (25.9 percent), 50th in 1996 (25.3 percent), 50th in 1994 (25.3 percent), and 50th in 1992 (23.2 percent).

Besides Nevada and Alaska, the bottom 10 states have consistently included in 1992, 1994, 1996 and 1998 **Arizona, Florida, Texas, South Carolina** and **Tennessee**. Other states that usually rank in the bottom 10 include **Georgia**, **Louisiana** and sometimes **New Mexico**.

Of greater interest than who stays near the top or bottom of the state ranking is the change in each state's position over time. Which states are making progress? Which states are actually moving backward as the human capital economy moves forward?

The chart on this page shows the change in percentage points for each state (except Maine, which submitted incomplete data in 1988) between 1988 and 1998.

- Over the last decade, 28 states increased their chance for college by age 19 by more than the national increase of 4.1 percent. The leaders are **New Jersey, Montana, Massachusetts, Rhode Island, New Hampshire, New York, South Dakota, Oklahoma, Utah, Idaho, Delaware** and **Pennsylvania**.
- An additional 11 states increased their chance for college, but by less than the national increase.
- The remaining ten states saw actual declines in the rate at which their 19 year olds reached college between 1988 and 1998.

Clearly, several states just don't appreciate the importance of the human capital economy. The states with the worst records fostering higher educational enrollment over the last 10 years were **Arizona, Oregon, California, Nevada** and **Minnesota**.

* * * * *

Notes on Data Availability

The Excel spreadsheet containing the entered and calculated data used in these analyses is available for downloading from our website. Go to:

http://www.postsecondary.org

Click on the Spreadsheets button. The downloader will need free Adobe Acrobat Reader software. If the downloader lacks this software, a link from our website to Adobe's will start the process.

Public High School Graduation Rate, College Continuation Rate, and Chance for College by Age 19 by State
1986, 1988, 1992, 1994, 1996, 1998

	Public HS Graduation Rate						College Continuation Rate						Chance for College by Age 19					
State	1985	1988	1992	1994	1996	1998	1986	1988	1992	1994	1996	1998	1986	1988	1992	1994	1996	1998
Alabama	66.2%	74.1%	66.1%	60.1%	57.8%	59.8%	37.8%	47.7%	56.5%	64.1%	59.8%	58.0%	25.0%	35.4%	37.3%	38.5%	34.6%	34.7%
Alaska	79.3%	69.8%	74.1%	70.8%	64.7%	65.0%	19.9%	26.7%	39.5%	37.4%	40.5%	37.2%	15.8%	18.6%	29.3%	26.5%	26.2%	24.2%
Arizona	68.4%	66.6%	72.7%	63.8%	58.4%	61.5%	42.9%	55.6%	45.8%	47.3%	47.9%	45.0%	29.3%	37.0%	33.3%	30.2%	27.9%	27.7%
Arkansas	78.2%	78.7%	78.3%	76.4%	74.9%	73.2%	25.2%	41.4%	45.7%	48.2%	51.5%	53.7%	19.7%	32.6%	35.7%	36.8%	38.6%	39.3%
California	69.0%	68.5%	68.6%	66.3%	65.3%	67.3%	58.7%	58.3%	51.4%	60.8%	66.4%	51.3%	40.6%	40.0%	35.2%	40.3%	43.4%	34.5%
Colorado	76.2%	76.4%	75.1%	74.9%	71.9%	71.5%	11.0%	44.3%	51.2%	51.7%	52.7%	54.3%	8.4%	33.9%	38.5%	38.8%	37.9%	38.8%
Connecticut	87.1%	82.2%	80.4%	78.9%	73.5%	73.4%	45.8%	49.2%	57.1%	58.6%	59.7%	64.9%	39.9%	40.4%	45.9%	46.2%	43.9%	47.6%
Delaware	70.7%	69.8%	69.6%	66.5%	65.8%	68.0%	47.2%	43.2%	57.7%	65.1%	66.5%	62.2%	33.4%	30.2%	40.1%	43.2%	43.8%	42.3%
Florida	66.8%	63.0%	65.0%	59.3%	57.8%	57.0%	44.6%	42.7%	45.4%	49.2%	50.3%	49.5%	29.8%	26.9%	29.5%	29.2%	29.1%	28.2%
Georgia	64.9%	63.4%	63.7%	59.4%	55.0%	51.3%	42.6%	47.7%	55.1%	59.4%	55.6%	60.4%	27.6%	30.2%	35.1%	35.3%	30.6%	30.9%
Hawaii	83.2%	81.7%	78.1%	76.1%	74.8%	62.0%	28.0%	45.8%	56.1%	61.7%	62.0%	59.6%	23.3%	37.4%	43.8%	46.9%	46.4%	37.0%
Idaho	79.9%	76.8%	81.1%	79.7%	79.6%	78.5%	43.3%	32.3%	49.0%	48.0%	46.2%	47.3%	34.6%	24.8%	39.7%	38.3%	36.7%	37.1%
Illinois	77.9%	78.2%	78.6%	77.2%	76.2%	76.9%	42.0%	53.1%	62.1%	63.6%	63.9%	62.7%	32.7%	41.5%	48.8%	49.1%	48.7%	48.3%
Indiana	76.2%	78.1%	76.0%	71.3%	70.1%	70.8%	37.5%	44.8%	50.5%	55.0%	57.9%	60.5%	28.6%	35.0%	38.4%	39.2%	40.6%	42.9%
Iowa	87.3%	86.9%	87.6%	87.0%	85.3%	88.7%	50.2%	57.5%	61.8%	64.1%	63.8%	60.2%	43.9%	50.0%	54.1%	55.7%	54.4%	53.4%
Kansas	84.6%	82.7%	80.5%	79.0%	75.8%	73.3%	47.0%	52.8%	57.3%	57.2%	61.6%	60.9%	39.8%	43.6%	46.2%	45.2%	46.7%	44.6%
Kentucky	68.9%	69.1%	69.8%	75.5%	68.1%	66.8%	39.4%	52.8%	48.9%	49.4%	52.9%	54.7%	27.1%	36.5%	34.2%	37.3%	36.0%	36.6%
Louisiana	61.7%	61.6%	52.9%	58.5%	57.9%	55.4%	42.5%	41.3%	54.2%	53.4%	54.2%	63.0%	26.2%	25.4%	28.7%	31.2%	31.4%	34.9%
Maine	76.1%	77.7%	81.1%	74.0%	72.4%	78.5%	23.5%	22.2%	48.6%	50.4%	53.9%	55.3%	17.9%	17.3%	39.4%	37.3%	39.1%	43.4%
Maryland	78.0%	76.1%	76.1%	74.7%	73.9%	70.6%	40.9%	46.4%	55.9%	55.2%	58.2%	57.6%	31.8%	35.3%	42.6%	41.2%	43.0%	40.7%
Massachusetts	74.7%	74.3%	79.1%	78.0%	75.8%	75.6%	50.4%	51.3%	59.0%	65.4%	70.8%	71.5%	37.7%	38.2%	46.7%	51.0%	53.7%	54.1%
Michigan	74.3%	72.9%	70.9%	70.0%	69.6%	72.2%	43.2%	48.8%	57.5%	60.1%	58.6%	57.9%	32.1%	35.6%	40.8%	42.1%	40.8%	41.9%
Minnesota	88.7%	89.5%	89.2%	87.9%	85.3%	83.6%	42.4%	49.6%	53.6%	52.6%	53.9%	49.1%	37.6%	44.4%	47.8%	46.2%	45.9%	41.0%
Mississippi	63.6%	67.5%	62.1%	62.4%	56.8%	56.4%	40.8%	48.2%	61.9%	68.6%	63.5%	59.7%	26.0%	32.6%	38.4%	42.8%	36.0%	33.7%
Missouri	76.6%	75.5%	73.2%	73.2%	71.2%	71.7%	42.2%	43.9%	48.7%	50.8%	50.2%	54.7%	32.3%	33.1%	35.7%	37.2%	35.8%	39.2%
Montana	86.3%	84.7%	85.5%	84.4%	82.8%	80.1%	27.9%	33.1%	50.8%	54.2%	55.5%	57.7%	24.1%	28.0%	43.4%	45.8%	46.0%	46.2%
Nebraska	87.7%	85.9%	87.2%	85.1%	82.9%	84.7%	53.6%	58.7%	63.3%	60.4%	61.7%	61.0%	47.0%	50.4%	55.2%	51.4%	51.2%	51.7%
Nevada	79.5%	73.0%	70.7%	67.4%	65.4%	69.9%	25.1%	42.3%	32.8%	37.6%	38.7%	37.1%	19.9%	30.8%	23.2%	25.3%	25.3%	25.9%
New Hampshire	74.5%	77.2%	78.1%	78.3%	74.9%	74.5%	40.0%	39.6%	56.2%	55.6%	57.4%	59.4%	29.8%	30.6%	43.9%	43.5%	43.0%	44.2%
New Jersey	79.4%	80.4%	84.1%	85.3%	82.8%	78.2%	40.1%	41.6%	60.9%	64.4%	65.4%	68.8%	31.8%	33.4%	51.2%	54.9%	54.1%	53.8%
New Mexico	73.0%	73.4%	67.8%	66.6%	63.4%	57.9%	37.3%	41.7%	50.1%	53.5%	55.7%	64.5%	27.2%	30.6%	34.0%	35.6%	35.3%	37.3%
New York	67.6%	66.3%	66.6%	64.5%	61.4%	61.0%	49.6%	45.2%	66.9%	69.5%	71.0%	71.3%	33.5%	30.0%	44.5%	44.8%	43.6%	43.5%
North Carolina	71.0%	68.0%	68.5%	66.0%	62.4%	60.8%	51.2%	53.1%	50.0%	51.0%	53.8%	64.5%	36.4%	36.1%	34.3%	33.7%	33.5%	39.2%
North Dakota	88.6%	88.3%	87.5%	87.7%	89.0%	85.4%	54.8%	56.3%	65.8%	68.2%	71.0%	69.5%	48.5%	49.7%	57.5%	59.7%	63.2%	59.4%
Ohio	79.3%	76.4%	72.4%	75.0%	70.6%	73.2%	34.0%	41.4%	50.3%	51.4%	54.5%	55.1%	27.0%	31.6%	36.4%	38.5%	38.5%	40.3%
Oklahoma	75.9%	74.0%	76.3%	76.1%	73.0%	72.1%	43.4%	32.4%	50.6%	49.3%	47.6%	50.7%	32.9%	24.0%	38.6%	37.5%	34.7%	36.6%
Oregon	71.7%	71.7%	73.5%	72.7%	66.6%	67.2%	45.0%	52.6%	54.3%	57.4%	52.6%	47.2%	32.3%	37.7%	39.9%	41.8%	35.0%	31.7%
Pennsylvania	81.0%	81.1%	81.5%	78.9%	76.3%	75.3%	38.9%	43.1%	53.8%	56.9%	56.7%	62.3%	31.6%	35.0%	43.8%	44.9%	43.2%	46.9%
Rhode Island	73.1%	71.9%	76.8%	73.4%	71.4%	70.0%	40.3%	44.1%	61.8%	65.4%	65.1%	67.8%	29.5%	31.7%	47.5%	48.0%	46.4%	47.5%
South Carolina	65.3%	64.8%	58.1%	57.5%	54.4%	53.2%	40.6%	47.1%	43.4%	58.4%	59.1%	61.2%	26.5%	30.5%	25.2%	33.6%	32.1%	32.6%
South Dakota	84.7%	86.7%	85.3%	91.4%	86.6%	75.7%	46.8%	41.2%	51.3%	49.9%	52.0%	63.9%	39.7%	35.8%	43.8%	45.6%	45.0%	48.4%
Tennessee	66.3%	68.6%	68.7%	63.0%	63.4%	60.0%	40.1%	46.2%	46.7%	53.5%	53.8%	55.6%	26.6%	31.7%	32.1%	33.7%	34.1%	33.3%
Texas	66.0%	64.9%	56.0%	59.6%	58.4%	61.0%	37.7%	50.5%	52.5%	50.4%	54.1%	51.2%	24.9%	32.8%	29.4%	30.1%	31.6%	31.3%
Utah	81.6%	81.3%	81.1%	80.2%	78.4%	82.3%	20.2%	27.0%	51.7%	55.8%	50.8%	41.7%	16.5%	21.9%	41.9%	44.8%	39.8%	34.3%
Vermont	80.9%	81.2%	82.4%	84.6%	89.9%	80.9%	40.3%	51.5%	55.8%	50.6%	47.2%	49.8%	32.6%	41.9%	45.9%	42.8%	42.4%	40.3%
Virginia	75.7%	74.6%	74.0%	72.4%	75.5%	73.2%	40.7%	48.0%	51.7%	53.3%	54.5%	56.1%	30.9%	35.8%	38.3%	38.6%	41.1%	41.1%
Washington	74.8%	78.0%	76.1%	76.7%	72.2%	70.9%	46.6%	48.6%	58.4%	57.4%	58.1%	52.2%	34.9%	37.9%	44.5%	44.0%	42.0%	37.0%
West Virginia	75.6%	76.8%	77.0%	78.0%	76.1%	75.3%	38.1%	41.5%	49.1%	49.5%	50.1%	53.4%	28.8%	31.9%	37.9%	38.6%	38.1%	40.2%
Wisconsin	84.6%	83.3%	82.2%	81.9%	80.4%	78.8%	47.2%	52.4%	60.5%	59.8%	57.7%	55.4%	39.9%	43.6%	49.7%	49.0%	46.4%	43.7%
Wyoming	77.2%	77.5%	83.8%	84.3%	77.8%	77.4%	46.6%	46.9%	46.2%	52.6%	52.8%	54.1%	36.0%	36.4%	38.7%	44.3%	41.1%	41.9%
United States	73.4%	72.7%	71.2%	70.0%	67.9%	67.8%	43.1%	47.8%	54.3%	57.1%	58.5%	57.2%	31.6%	34.7%	38.7%	40.0%	39.7%	38.8%

Voting Rates by Educational Attainment
1964 to 1998

Voting is one of our democratic rights and privileges. Along with obeying laws, paying taxes, engaging in civic processes and providing leadership, and becoming informed about the issues we expect our government to address on our behalf, voting regularly engages the individual in the processes of society that influence our lives.

The founding fathers of the United States--Jefferson, Rush and others--believed that the expansion of educational opportunity was necessary to create an informed public opinion to protect newly won freedoms that might otherwise be lost through a passive or ignorant citizenry.

Nineteenth century educational reformers, such as Horace Mann of Massachusetts and Henry Barnard of Connecticut, worked to establish public schools to provide common education for all citizens. Their arguments extended those of the country's founders. The reformers held that education could transform all youth into literate, virtuous citizens and could build a distinctive new society. Furthermore, the reformers appealed to citizens' concerns about growing tensions and conflicts in American society, arguing that common schooling available to all would preserve social stability and prevent crime and poverty.

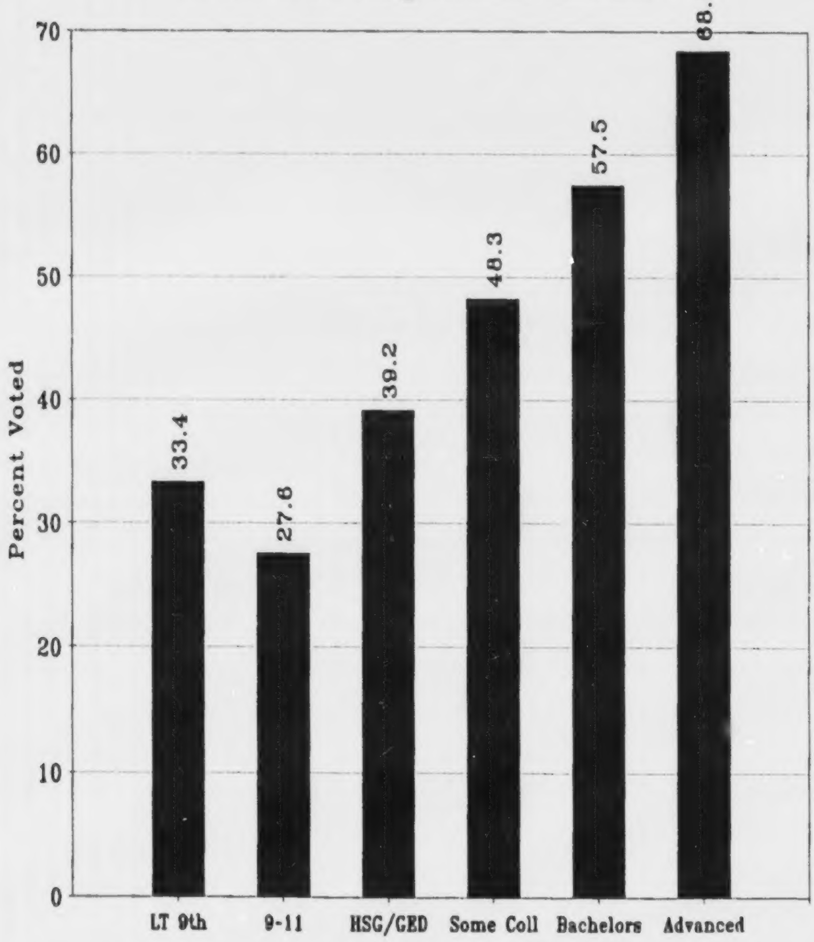
Efforts to expand educational opportunity have been enormously successful with all states passing compulsory school attendance laws by 1918. This expansion of education is vital to the effective operation of democracy, as implied by the chart on this page.

Here we examine a variety of measures of voting, particularly from the perspective of educational attainment. What these data show so clearly is that the better educated among us are far more likely to vote than are those who are less well educated. With another presidential election just months away, we review here one of the most important benefits of social investment in higher educational opportunity: support for democracy.

Our analysis of these data over time and across population groups consistently finds that more education leads to higher voting rates. This has been true in every national election--both presidential and congressional--since 1964. It is true for men and women. It is true for whites, blacks and Hispanics.

Education is truly the engine that drives democracy through the civic engagement of the act of making

Voting Rates for Citizens by Educational Attainment in the 1998 Congressional Election



Source: Census Bureau

130

choices on election day.

The Data

Most of the data used in this analysis have been collected by the Census Bureau in the Current Population Survey. This is a monthly survey of about 50,000 U.S. households primarily to collect data on employment and unemployment. Supplements to the basic employment survey collect additional data, including information on voting in the November CPS in even numbered years.

Presidential elections are held once every four years, and the intervening elections are called congressional elections. The last presidential election was held in 1996, and the last congressional election was held in 1998.

Day, J. C., and Gaither, A. L. (May 2000.) *Voting and Registration in the Election of 1998.* Current Population Reports P20-523. Washington, DC: Census Bureau.

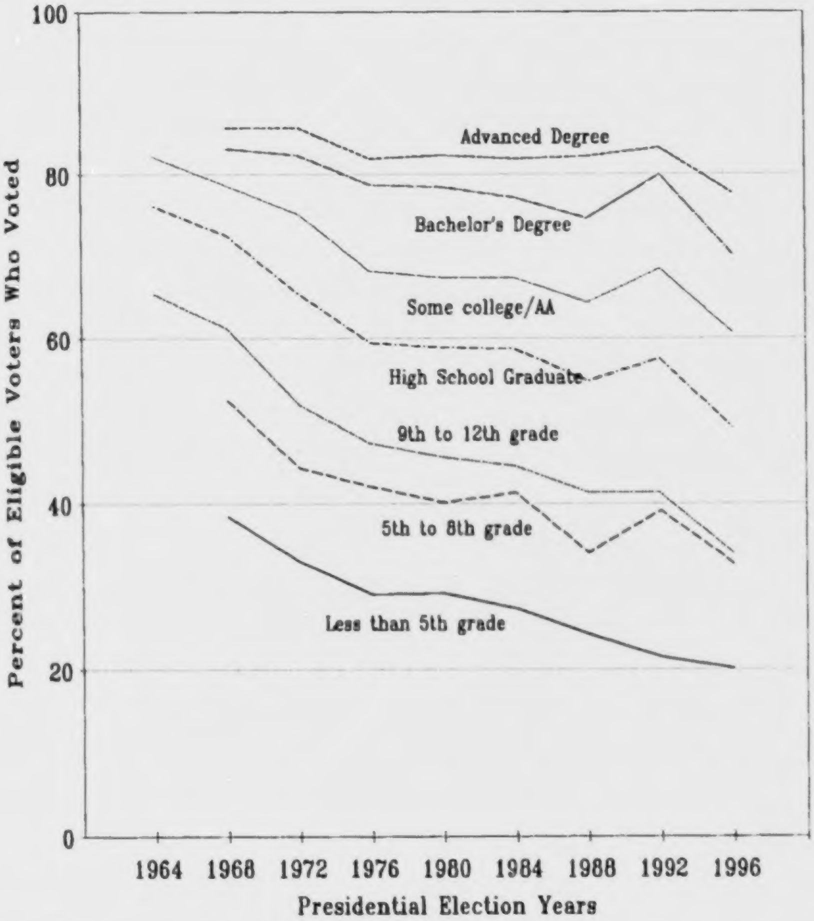
Filters

These voting data are collected and reported in such a way that three major filters can be separately assessed before voting behavior is counted: age, citizenship and registration.

For example, in the November 1998 CPS, there were:

- 198,228,000 people age 18 years and over were identified in the civilian, noninstitutional population of the United States.
- Of these 14,777,000 were not citizens and thus not eligible to vote. That left 183,451,000 eligible.

Voting Rates in Presidential Elections
by Educational Attainment
1964 to 1996



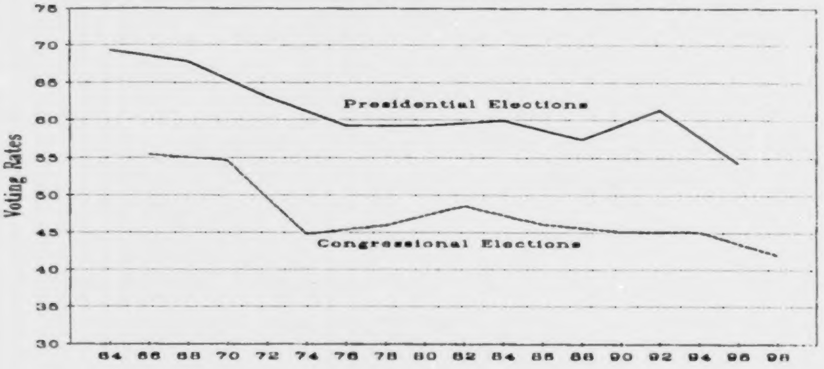
- But 60,347,000 of those eligible did not register to vote and thus could not vote on election day. That left 123,104,000 registered citizens to vote.
- But 40,006,000 of the registered citizens did not vote in November 1998.
- Thus, in the fall 1998 congressional election, just 83,098,000 actually reported voting. This was 67.5 percent of those registered to vote, 45.3 percent of those who were citizens, and 41.9 percent of the population age 18 and over.

The Census Bureau reports voting rates based on the civilian, noninstitutional population--not citizens or those registered to vote. Except where noted otherwise (as in the chart on page 10), we follow this Census Bureau convention.

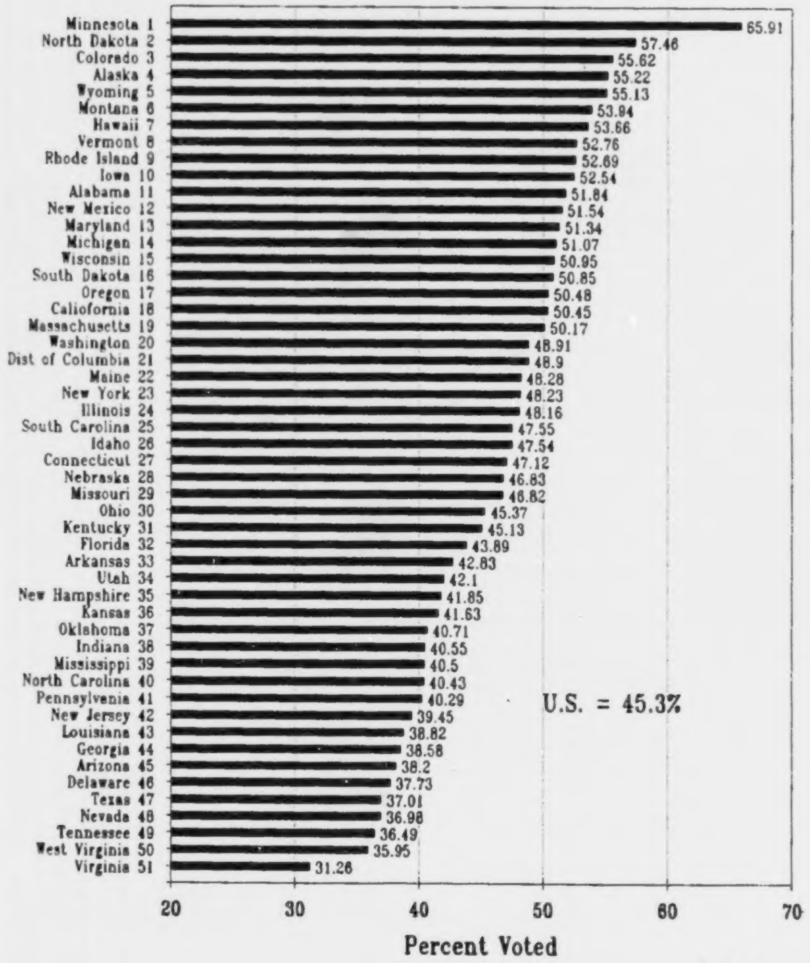
Trends and Patterns

A significantly greater share of the population votes in presidential elections compared to the intervening congressional elections. In the 1996 presidential election, 54.2 percent of the voting age population voted. In

Voting Rates in Presidential and Congressional Elections
1964 to 1998



Voting Rates for Citizens by State
in the 1998 Congressional Election



the 1998 congressional election, 41.9 percent voted. On average, a presidential election engages about 14 percent more of the population than does the congressional election two years later.

Since the mid 1960s, voting rates in both the presidential and congressional elections have declined. For example, in the presidential election, the voting rate declined from 69.3 percent in 1964 to 54.2 percent by 1996--by 15.1 percentage points. In the congressional election, the voting rate declined from 55.4 percent in 1966 to 41.9 percent by 1998--or by 13.5 percentage points. This decline, as we will shortly see, has occurred more at lower levels of educational attainment than at higher levels.

Voting rates vary sharply by age: older people are considerably more likely to vote than are younger people. In the 1996 presidential election, voting rates ranged from 32.4 percent among those 18 to 24, but more than doubled to 67.0 percent for those 65 years and over. In the 1998 congressional election, voting rates ranged from 31.1 percent for those 18 to 24, to 64.5 percent for those 45 to 64 years.

Voting rates vary sharply across racial/ethnic classifications of the population. In the 1998 congressional election, voting rates ranged from 19.2 percent of the non-Hispanic Asian and Pacific Islanders to 46.5 percent of the non-Hispanic whites. Blacks voted at a 40.0 percent rate, and 20.0 percent of Hispanics voted.

There are significant differences in voting rates across the states as well. In the 1998 congressional election, voting rates ranged from 31 percent in Virginia to 66 percent in Minnesota. In the 1996 presidential election, voting rates ranged from 43 percent in Hawaii to 68 percent in Maine.

(The chart on the previous page shows state voting rates for citizens in the 1998 congressional election. In most states there would be little difference between the voting rates for the population and voting rates just for citizens. In 32 states more than 96 percent of the population 18 and over has U.S. citizenship. But at the other end of the scale, in California, just 80.2 percent are citizens. Other states where less than 90 percent of those 18 and over are citizens include New York, Arizona, Texas, Florida and Nevada.)

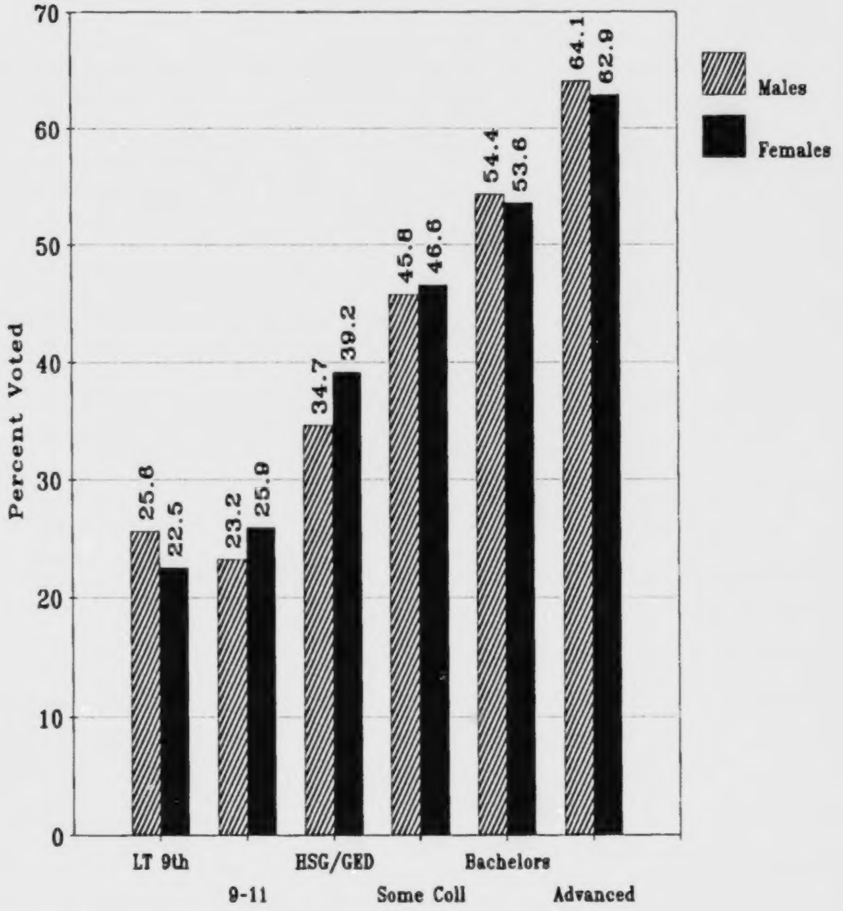
Educational Attainment

Our main interest here is in exploring the relationships between educational attainment and voting behavior. The chart on page 10 makes this relation ship clear: in the 1998 congressional election, voting rates increased with educational attainment. Those with the most formal education were nearly three times more likely to have voted than were those with some high school but no diploma.

Patterns. The chart on page 11 shows the relationship between educational attainment and voting rates in presidential elections between 1964 and 1996. Here the same relationship holds: those with the most education were considerably more likely to vote than were those with the least education consistently over three decades.

Trends. But an additional insight is available in these data. Between 1968 and 1998, while voting rates were generally declining, they were declining the least at the highest levels of educational attainment, and the most at the lowest levels of educational attainment.

Voting Rates by Educational Attainment and Gender in the 1998 Congressional Election



Source: Census Bureau

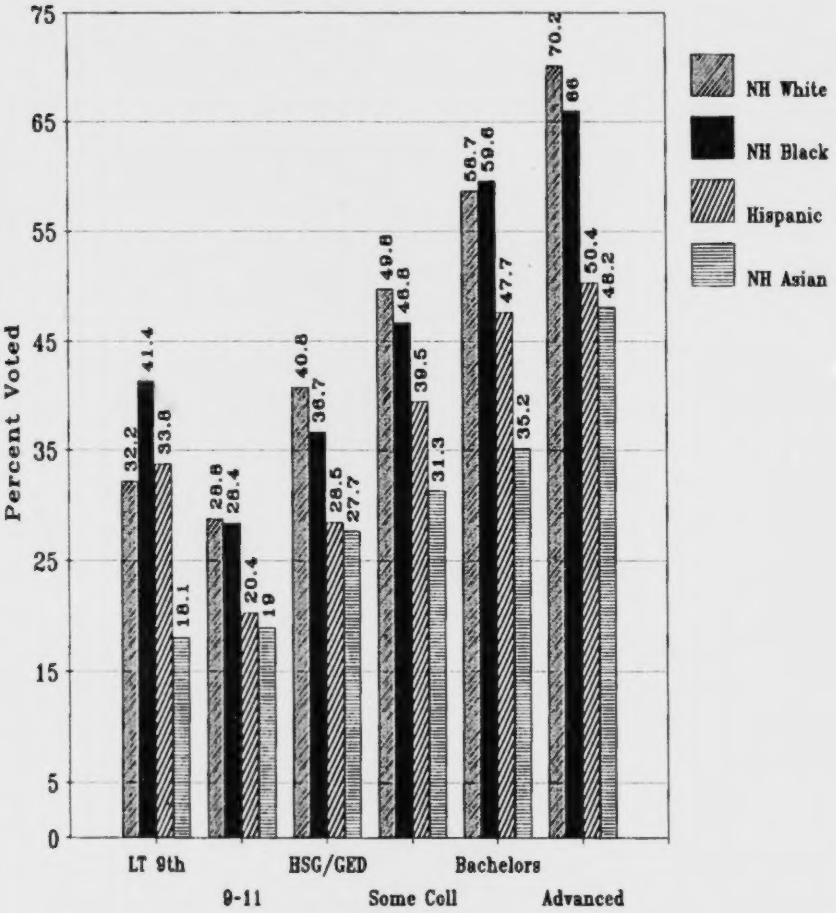
	Change: 1968 to 1996
Advanced	-8.1%
Bachelors	-12.8%
Some/associate	-17.9%
HS graduate	-23.4%
9-12 years, not HSG	-27.5%

Clearly, the decline in voting rates is significantly related to educational attainment and its correlates, especially income. Those most engaged in education and its economic rewards are also most, and increasingly, engaged in the civic duty of voting. Those who have least engaged in formal education, and are least economically successful, are also least engaged with their civic duty to vote. The implications of this finding for public policy designed to broaden higher educational opportunity are clearly crucial to the success of representative democracy. More about this later.

Gender. The general relationship between educational attainment and voting rates holds for both men and women as well. As shown in the chart on this page, in the 1998 congressional election voting rates for citizens by gender increased sharply with educational attainment.

Over time, voting rates for the population of males and females have

Voting Rates for Citizens by Educational Attainment and Race/Ethnicity in the 1998 Congressional Election



Source: Census Bureau

both declined, but at different rates. In congressional elections, the voting rate for males declined by 16.8 percent between 1966 and 1998. During this same period, the rate for females declined by 10.6 percent. In congressional elections, the voting rate for females first surpassed the male rate in the election of 1986.

In presidential elections, there are similar findings. Between 1964 and 1996 the voting rate for males declined by 19.1 percent while the voting rate for females declined by 11.5 percent. Women surpassed men in voting rates for the first time in the presidential election of 1980.

Race/ethnicity. With some interesting exceptions, voting rates for citizens are also directly related to educational attainment. Here we have calculated voting rates only for citizens because citizenship rates vary significantly across racial/ethnic groups of the population. For example, in 1998 the proportion of the population 18 years and over that were U.S. citizens were:

	Citizens
non-Hispanic white	98.1%
non-Hispanic black	95.6%
non-Hispanic Asian	59.3%
Hispanic	61.0%

Controlling for citizenship within each racial/ethnic group voting rates are generally related to educational attainment. However, at each level of educational attainment voting rates differ sharply. Controlling for education, whites and blacks voted at the highest rates and are very similar.

However, at each level of educational attainment, Hispanic and Asian citizens voted at considerably lower rates. At every level of educational attainment from lowest through highest, Asians were least likely to vote in the 1998 congressional election.

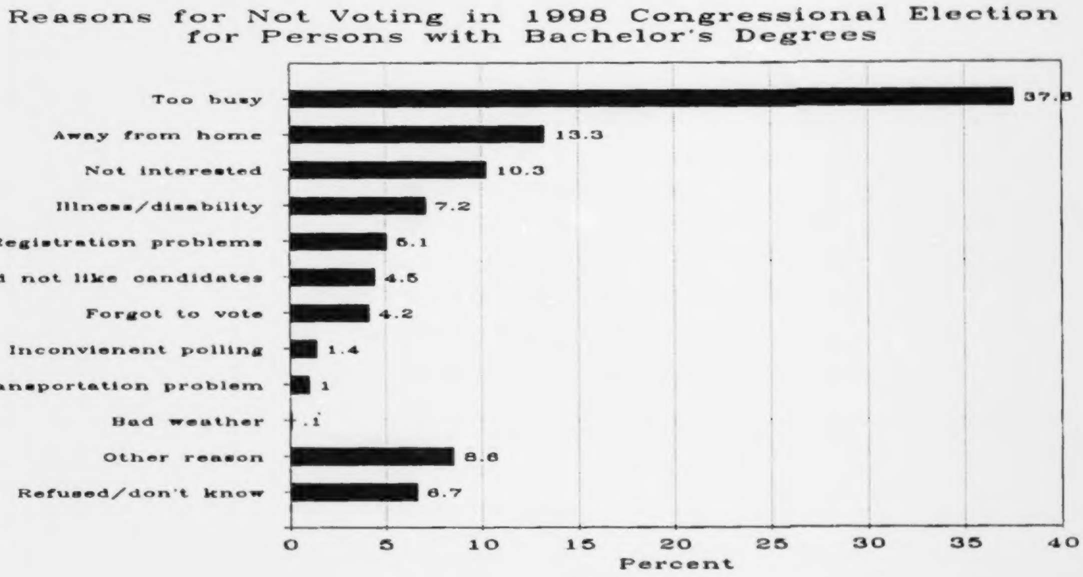
Reasons for Not Voting

Out of 183,451,000 citizens 18 and over at the time of the 1998 congressional election, 100,353,000 did not bother to vote. Of these, 60,347,000 civic derelicts had not even bothered to register to vote.

Among those registered to vote but not voting, the following were cited as their reasons for not voting:

Too busy, schedule conflict	34.9%
Not interested, felt vote would not make a difference	12.7%
Illness, disability	11.1%
Out of town, away from home	8.3%
Did not like candidates or campaign issues	5.5%
Forgot to vote	5.3%
Registration problems	3.6%
Transportation problems	1.8%
Inconvenient polling place or hours or lines too long	1.1%
Bad weather conditions	0.2%
Other reason, not specified	8.3%
Refused or don't know	7.1%

College graduates gave similar excuses. In fact there was not much difference in the pattern of excuses for not voting across levels of educational



attainment. The chart on this page shows the excuses for not voting for those who both held bachelor's degrees and were registered to vote. College graduates were only slightly more likely to cite being too busy than the population as a whole. They were also slightly more likely to report that they were out of town or away from home on election day than the general population, and that they had registration problems more often. College graduates were somewhat less likely than the general population to report that they were not interested or felt that their vote would not make a difference, had an illness or disability that prevented them from voting, did not like the candidates or campaign issues, or forgot to vote.

There is another way to look at those who did not vote in 1998--by comparing the typically lower congressional voting rates in 1998 to the typically higher voting rates in the 1996 presidential election. We do so again from the perspective of educational attainment.

Between the 1996 presidential election and the 1998 congressional election, voting rates for citizens declined the most among those who had attended college, particularly those with bachelor's degrees. Voting rates declined the least among those with only a high school education or less.

	Change from 1996 to 1998
Less than high school	-9.2%
High school graduate/GED	-12.5%
Some college/associate	-14.8%
Bachelor's	-16.6%
Advanced	-14.8%

Political Party Identification

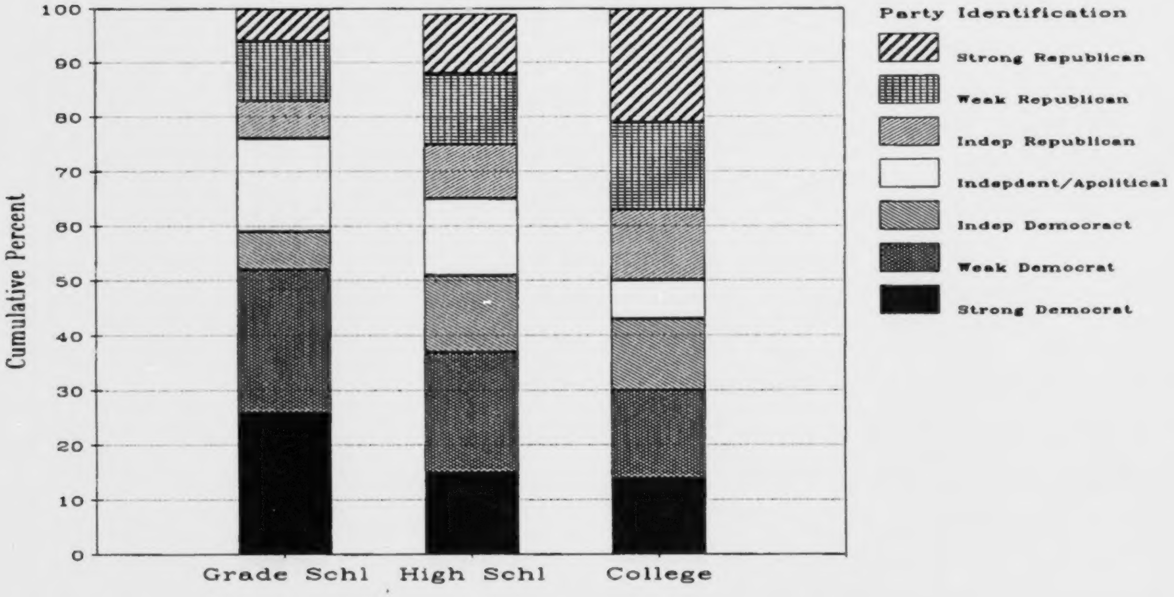
Among adults, how does educational attainment affect party identification? Our data are somewhat dated, but strongly indicative nonetheless. The chart appears on the next page.

The answer is quite clear: more education makes more Republicans, while less education makes more Democrats. As shown in the chart on the following page, using 1994 data: Among those with just grade school educations, 24 percent reported a Republican preference while 59 percent reported Democratic preferences. Among those with high school educations, 34 percent reported Republican preferences while 51 percent reported Democratic preferences. Among those with college educations, 50 percent indicated Republican and 43 percent indicated Democrat. So much for the liberalizing influence of a college education . . .

Conclusion

A majority of Americans do not take democracy seriously. They defer to others the choices to be made on election day about who will run government and the policies, laws, taxes, appointments and other decisions our elected leaders make on our behalf. However, as these data make clear, those with college educations are considerably more likely to exercise this right and responsibility than are those who are less educated. This is true across genders and racial/ethnic groupings of the population. It is true across time. And it has become more true over time. But the commitment of the college-educated to electoral opportunities is not particularly strong. When there is no president to vote for--merely a congressman to select--they are too often too busy to vote.

Political Party Identification of Adults by Education 1994



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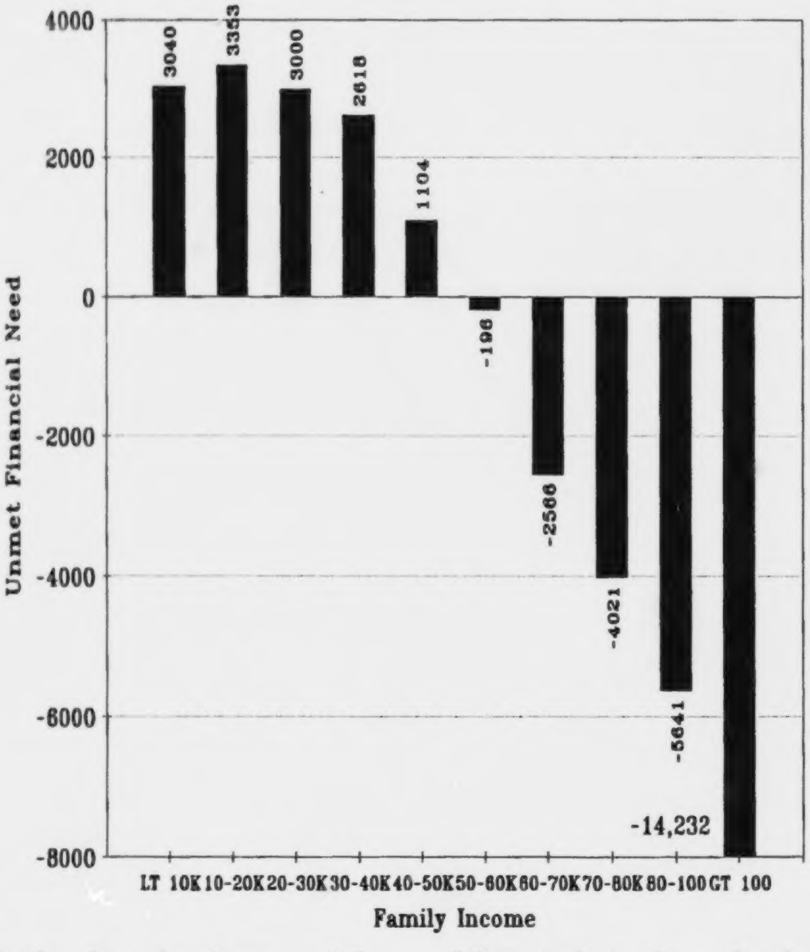
Number 99 **www.postsecondary.org** **September 2000**

An analysis . . . *. . . and editorial*

Higher Education Proposals of Albert Gore and George Bush

Unmet Financial Need for Dependent Undergraduate Students Who Receive Financial Aid 1995-96



Come November 7th, Americans will choose a new president of the United States for the next four years. The choice will almost certainly be made between George Bush and Albert Gore. Both presidential candidates have advanced significant higher education proposals. Both appear to be aware of the importance of higher education to voters.

The higher education proposals advanced by the two candidates differ in significant ways. So do their past records in support of higher education. It is vitally important to everyone who cares about higher educational opportunity to become familiar with the records, proposals and positions of the candidates before election day on Tuesday November 7.

So far, from what we have heard, both candidates appear to understand that voters care about financial aid for higher education. It is important to examine these proposals to see who is targeted. It is not enough to holler "financial aid". The devil is in the details. And while campaign proposals are notoriously short of details, there is enough said in their proposals to give some idea of what each would try to do if elected president.

Frankly, both candidates have a ways to go to capture our vote. But in contrast to past elections, both are clearly trying. Here's why.

The United States is now nearly three decades into the human capital economy. In this economic era, those who are succeeding have the most formal education, and those who are failing tend to have the least education. This finding--reported for the last eight years in these pages of OPPORTUNITY--applies to persons, families, households, cities, states and the entire country.

Our updated analyses have shown repeatedly that the relationship between income and education has steadily strengthened since the early 1970s. Parents who vote know this, and so do the candidates appealing for their votes in November.

So who recognizes what is happening? Who recognizes which students and families need help? Who really cares? Who is just pandering? Who understands the legitimate needs of students? Who has a record that indicates the promises of this campaign have a solid foundation?

George W. Bush

We start with the Governor of Texas, because he presents a more interesting set of higher education proposals and has a poor record as Governor of Texas in this area.

Record as Governor of Texas. Where does Texas rank among the states in support of higher educational opportunity?

- In 1998 the public high school graduation rate for Texas was 61.0 percent, compared to 67.8 percent for the U.S. Texas ranked 40th among the states.
- In 1992 before George Bush became governor of Texas, Texas ranked 50th among the states in its public high school graduation rate. Texas has risen steadily since then to 40th by 1998.
- In 1998 the college continuation rate for recent Texas high school graduates was 51.2 percent, compared to 57.2 percent nationally. Texas ranked 40th among the states in the proportion of its high school graduates continuing on to college immediately following high school graduation.
- In 1992 before George Bush became governor of Texas, the college continuation rate for recent Texas high school graduates was 52.5 percent, compared to 53.5 percent nationally. Between 1992 and 1998 this declined in Texas to 51.2 percent while it rose nationally to 57.2 percent. Texas' rank dropped from 26th in 1992 to 40th by 1998.
- The chance that a 19 year old will both graduate from high school then immediately go on to college in Texas was 31.3 percent, compared to 38.8 percent nationally. This ranked Texas 45th among the states.
- Since 1992 Texas has consistently ranked between 44th and 47th among the states in the chance that a 19 year old would reach college. The gains in high school graduation rates in Texas have been offset by losses in the college continuation rate for recent high school graduates in Texas.

Texas does about the same for its students who come from low income families.

- Over the period from 1992 through 1998, about 15.6 percent of Texas' low family income students reached college in the 18-24 age range. This compared to 23.6 percent nationally. Texas ranked 46th among the states over this period.
- The trend over the seven years from 1992 through 1998 was flat--no growth. In 47 of the 50 states plus DC, growth occurred. So Texas ranked 48th among the 50 states plus DC in growth in the chance for college for students from low income family backgrounds between 1992 and 1998.

This is a very poor record. Texas is no less affected than any other state by the highly educated labor force needs of the human capital economy. While Texas has made gains in K-12 education through high school

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Mission Statement

This research letter is founded on two fundamental beliefs. First, sound public social policy requires accurate, current, independent, and focused information on the human condition. Second, education is essential to the development of human potential and resources for both private and public benefit. Therefore, the purpose of this research letter is to inform those who formulate, fund, and administer public policy and programs about the condition of and influences that affect postsecondary education opportunity for all Americans.

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graduation, Texas also has lost ground on the rate at which its high school pgraduates go on to college. So it has been mired around 45th place among the states in getting its young people into college, and 46th place for getting its poor students into college, during George W. Bush's governorship.

Campaign proposals. Governor Bush has made several major federal student financial aid proposals during the presidential campaign. These are available from his campaign website at:

http://www.georgewbush.com

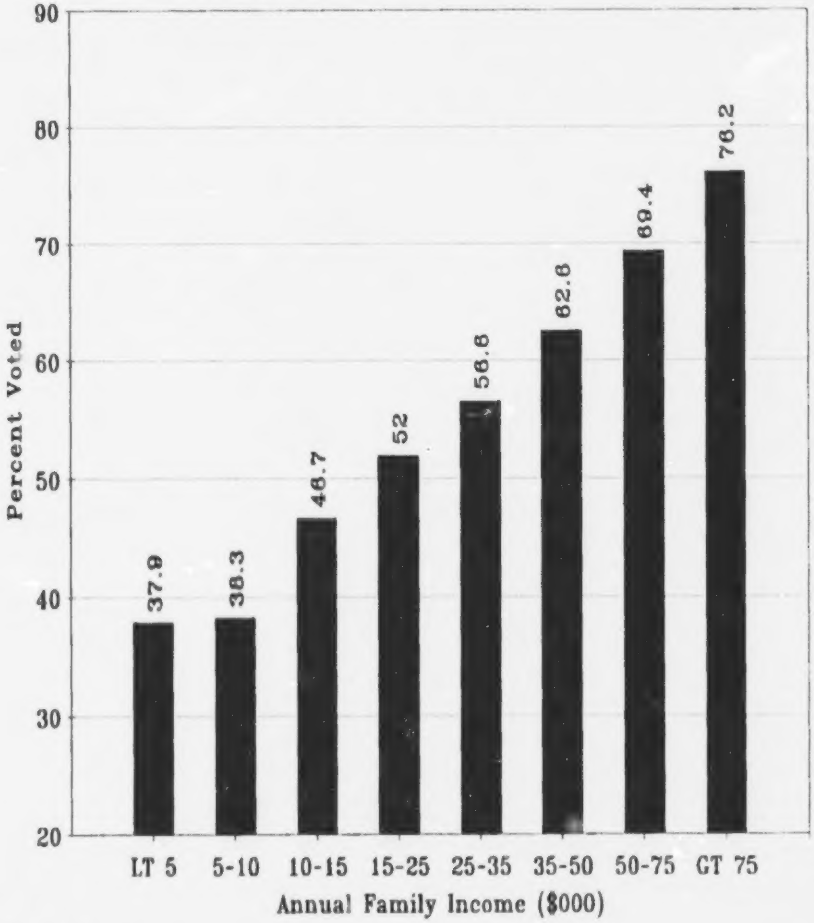
On the whole these proposals are clear, priced, appear to be reasonably well thought-through. Some are right on target, while several miss our mark.

1. *Expand Education Savings Accounts.* This permits families with incomes of up to $150,000 to save up to $5000 per year per child in education savings accounts. This is up from $500 currently permitted by law. Parents would be able to withdraw funds tax free for any education purpose, kindergarten to college. The cost of this proposal was not reported.

Our mark: Encouraging families to save for college is a good idea. But it does not help families from low or moderate income levels who lack discretionary income to set aside for future education expenses. This idea does not need the benefit of a tax-free ride. The tax benefit would go largely to those who do not need it.

2. *Enhanced Pell Grants to students who take math and science courses.* This would add $1000 to Pell Grant eligibility for students from low and moderate income families who take and pass AP math and science exams or college level math and science courses while in high school. The cost is estimated at $1 billion over five years.

Voting Rates by Family Income for Citizens in the 1996 Presidential Election



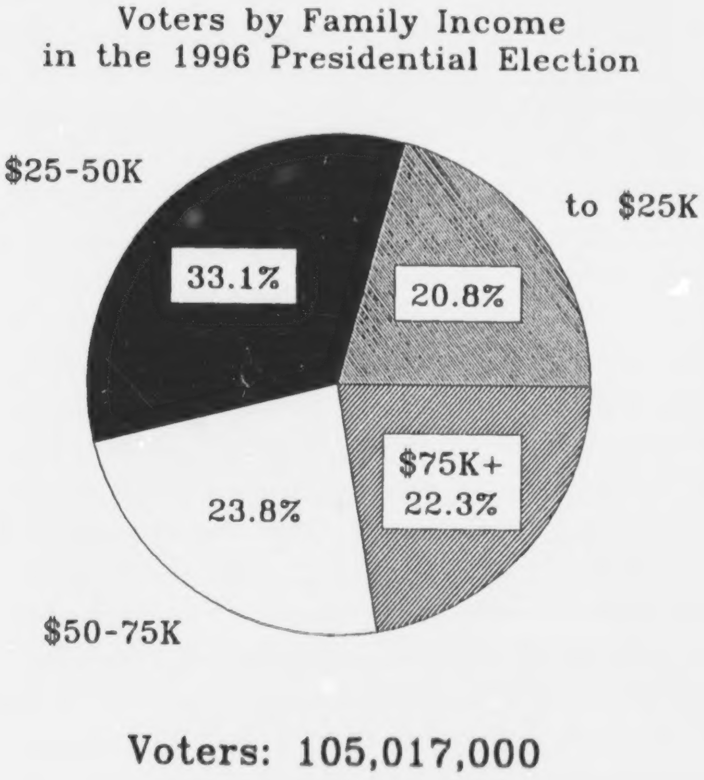
Source: Census Bureau

Our mark: On target in two ways. First the aid would go to those who clearly need it. Also, it would encourage these students to achieve in academically challenging subjects and would help them be successful in college coursework.

3. *Increase Pell Grant maximum award to authorized $5100 level for first year college students.* This proposal would cost $5 billion over five years.

Our mark: Clearly on target. Money would go to those most in need of grant assistance to finance higher education costs. But this is a bait-and-switch: after the first year of college unmet need would go up by as much as $1800. Still a worthy idea.

4. *Establish a $1.5 billion "College Challenge" Grant.* This is a program similar to the old State Student Incentive Grant program with a twist. Instead of encouraging states to start need-based grant programs, Challenge Grant funds would provide a one-third funding incentive for states to establish merit scholarship programs. Student eligibility would be up to the states,



except that students would be required to meet federally-determined baseline course requirements. States would have the incentive to make these courses available to all students. States with existing programs would qualify for Challenge Grants by maintaining or expanding their current programs. Estimated costs are $1.5 billion over five years.

Our mark: There are clearly positive features to this program. If the baseline curriculum is the New Basics curriculum from the 1983 Nation at Risk report, it would be a strong incentive for states to strengthen academic preparation for college in the state secondary curricula. OPPORTUNITY had advocated incorporating this curricular requirement into our proposed Pell Academic Challenge grant. Our concern is what state's might do to add eligibility requirements that would make it difficult for students from low and moderate family incomes to achieve these eligibility standards. We are also concerned that this might divert precious state resources away from state need-based grant programs. But clearly this proposal has merit.

5. Grant complete tax exemption to all qualified pre-paid and tuition savings plans and extend coverage to independent prepaid tuition programs. This is another college savings incentive targeted at families with discretionary income available to set aside for future higher education purchases. It does not address the needs of those from low and moderate family incomes that lack these discretionary resources. Estimated cost of this proposal is $275 million over five years.

Our mark: College savings is a good idea and families should be encouraged to save if they can for the future educations of their own children. But this proposal misses those who need government assistance to help pay college costs. Tax-favored treatment is unnecessary.

Albert Gore

Record in office. The Vice President does not have a state record on which to judge his support for higher educational opportunity. And for the last eight years he has lived in President Clinton's long shadow. Mr. Gore has tried to extricate himself from President Clinton's record in office, and while it may not be fair to judge Mr. Gore by Mr. Clinton's record, in fact Mr. Gore has promised to continue Mr. Clinton's initiatives.

So let's look at what has happened during the Clinton presidency.

- Since 1992 the public high school graduation rate in the United States has declined, from 71.2 percent in 1992 to 67.8 percent by 1998. This rate has been declining since 1983, and the decline continued under Clinton/Gore.
- More high school dropouts than ever are completing their high school credentials under the privately administered GED program. Where public schools are failing students, these students are pursuing alternative credentials.
- The college continuation rate for recent high school graduates increased from 61.7 percent in 1992 to 62.9 percent by 1999. This was a far smaller increase than under previous presidents since 1973.
- Under President Clinton's Hope and Lifetime Learning Tax credits enacted in 1997, the college continuation rate for recent high school graduates dropped sharply

in 1998 and 1999.

- Between 1992 and 2000 the freshman-to-sophomore dropout rate in higher education increased from 32.4 to 32.7 percent.
- Between 1992 and 2000 the 5-year graduation rate from colleges and universities declined from 49.9 to 45.6 percent.

This is a pretty sorry record if Mr. Gore wants to claim credit for it.

Campaign proposals. The Vice President's campaign emphasizes education themes. However, nearly all of Mr. Gore's recommendations are targeted on pre-school and K-12 education. His education proposals appear at great length on his website:

http://www.algore2000.com

From his website, these are his main proposals.

1. College Opportunity Tax Cut. Gore supports President Clinton's current proposal to extend the 1997 Hope and Lifetime Learning tax credits from $1500 to $2800, and to raise the income cap from $100,000 to $120,000. There is no information on the cost of this on Mr. Gore's website.

Our mark: We strongly opposed the Hope and Lifetime Learning tax credits that were enacted in 1997, and we strongly oppose their expansion as proposed by President Clinton. Because the tax credits are not refundable, the benefits do not go to those too poor to pay federal income taxes, below about $18,000 per year family income. They are not needs-tested, and nearly all of the benefits appear to go to families who do not need them. Doubling a bad idea makes these problems worse.

2. Help Families Save Tax-Free for Higher Education. Mr. Gore proposes new college savings accounts for individuals and employers for job training, education and lifelong learning. These savings would accumulate tax-free.

Our mark: College savings is a good idea. It works for those who have discretionary income to set aside for future educational purchases. It does not meet the needs of those who must use all of their earnings to live today. Moreover, those who have resources to save for the future do not need the tax benefit for such savings.

3. Keep college costs down. This is mislabeled. The Gore proposals are to assist state savings and prepaid tuition programs--nothing more.

Our mark: Nothing of substance here. The states have preempted federal involvement in prepaid tuition and college savings programs.

Our View

Clearly Mr. Bush has put forth clearer and more constructive proposals than has Mr. Gore during the presidential campaign. Some of these proposals are directed toward people who do not need government help to pay for college. But several proposals clearly address problems we have studied and reported on in past issues of OPPORTUNITY. While Mr. Bush apparently did not take college seriously when he was a student himself, his campaign has come up with some solid proposals worthy of implementation.

Unfortunately, Mr. Bush's record of support for higher education generally and opportunity in particular as Governor of Texas is very weak. When he led state government there, he could have addressed higher education funding needs and programs that broadened higher educational opportunity. Instead:

- State tax fund appropriations for higher education per $1000 of personal income declined during his tenure while they were rising in most other states.
- The college continuation rate for recent high school graduates declined in Texas during his tenure while it was rising nationally.
- Texas remains mired around 45th place among the states on almost any performance measure of higher educational opportunity.

The contrast between the clarity of Governor Bush's higher educational proposals during the campaign and his record as Governor of Texas is striking. It deserves explanation.

Mr. Gore has proposed nothing of substance, and nothing that addresses the needs of students from low or moderate income families. He has many proposals for pre-school and K-12 education. But clearly he has not given any consideration to educational opportunity problems and needs.

Unlike his Republican competitor who has two Pell Grant proposals, Mr. Gore has none. Mr. Gore has offered nothing at all to address the unmet needs of students from families earning less than about $40,000 per year as shown in the chart on the first page of this issue of OPPORTUNITY. Its a stunning omission for any politician, but especially a Democrat.

Between now and November 7th, we hope that both candidates will elaborate their records and positions on higher educational opportunity.

- Mr. Bush should explain his record, or lack thereof, as Governor of Texas.
- Mr. Gore, in particular, should sit down with those who study the needs of students--not pollsters--and see if he can think of some way to address the unmet financial and academic needs of students from lower income backgrounds.

Mr. Bush offered credible proposals. Mr. Gore has not.

These issues are too important to students and the country's future to allow them to pass unchallenged.

Federal Individual Income Taxes Paid by Educational Attainment
1970 to 1997

Private and social investments in the educational attainment of the American workforce have repaid huge and growing returns to the federal government through federal income taxes. For example, in 1997:

- Households headed by persons with any college enrollment experience comprised 50.8 percent of all households.
- These households earned 65.5 percent of all income earned by households.
- These households paid 71.7 percent of all federal individual income taxes paid in 1997.

This is the human capital economy, where income, productivity, and living standards (individual and social) are increasingly determined over the last three decades by the return on human capital investment. The federal government is one of the major beneficiaries of past private and social investments in higher education through the income taxes paid by individuals that finance federal programs.

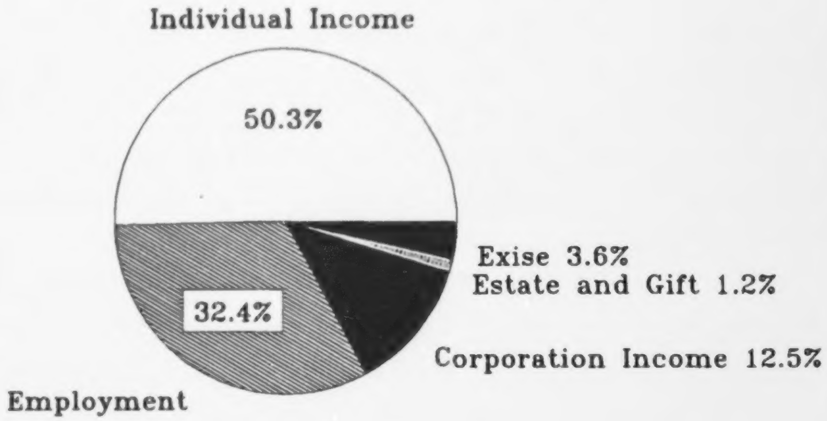
Even more dramatic are the data on households headed by persons with a bachelor's degree or more from college. In 1997:

- Households headed by persons with at least a bachelor's degree comprised 25.6 percent of all households.
- These households earned 40.1 percent of all household income.
- These households paid 47.7 percent of federal individual income taxes for 1997.

Moreover, between 1970 and 1997:

- The proportion of all households headed by persons with any college enrollment experience increased from 25.4 to 50.8 percent.
- The proportion of total household income earned by households headed by persons with any college education increased from

Internal Revenue Tax Collections by Source
1997



All taxes: $1,623,000,000,000

35.6 to 65.5 percent.

- The proportion of total federal income taxes paid by households headed by persons with any college education increased from 41.6 percent in 1970 to 71.7 percent by 1997.

Federal individual income taxes paid, which provided 48 percent of all federal receipts in 1998, are vitally important to federal government revenues. Excluding social insurance and retirement receipts and taxes dedicated to trust funds, federal individual income taxes provided 74 percent of the general operating revenues for federal program expenditures in 1998.

In this analysis we examine this vital relationship between education, income and federal income taxes paid over time and across levels of education. While our analysis is limited to federal income taxes paid, this relationship extends to state and local government tax revenues as well. Moreover, this relationship extends to the entire consumer economy. More education leads to more income, and more income leads to greater consumption of the goods and services produced and sold in the economy.

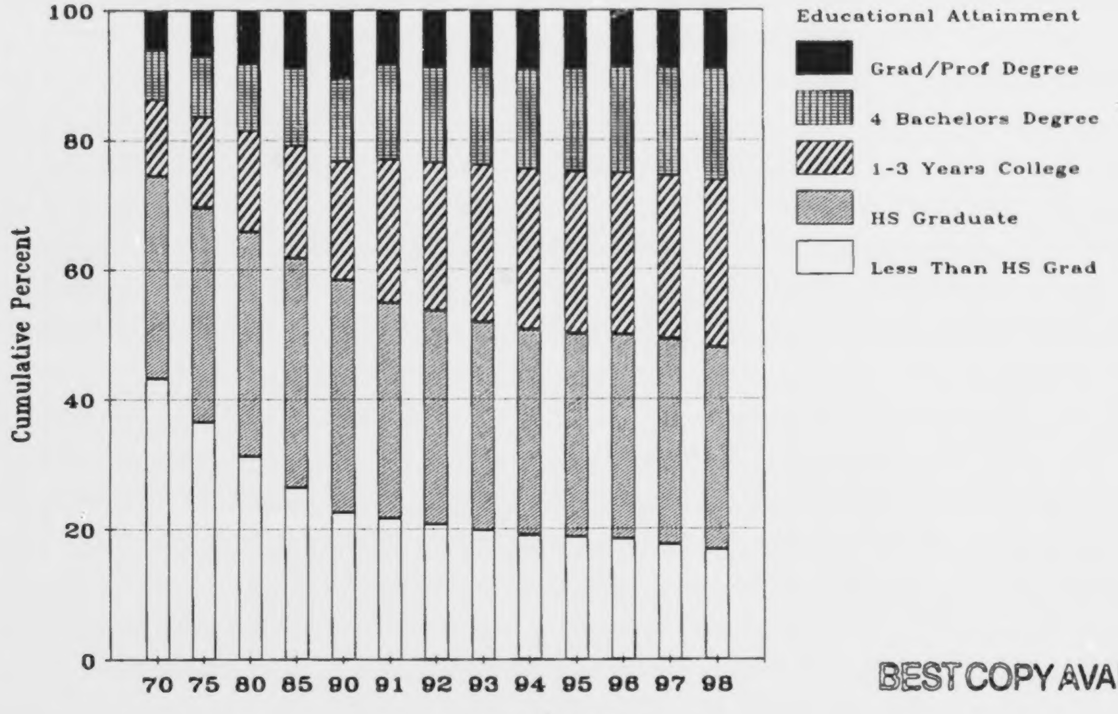
This analysis also provides insights into the changing tax structure of the federal income tax system. The record of federal income tax cuts enacted by Congress during the 1990s has shifted tax burdens, reducing the mild progressivity of the federal income tax system and thereby increasing the tax burden on those from lower income levels.

The following analysis looks first at the distribution and redistribution of educational attainment among American households since 1970. Then this relationship is extended to household income. Finally, this relationship is extended to federal income taxes paid by households.

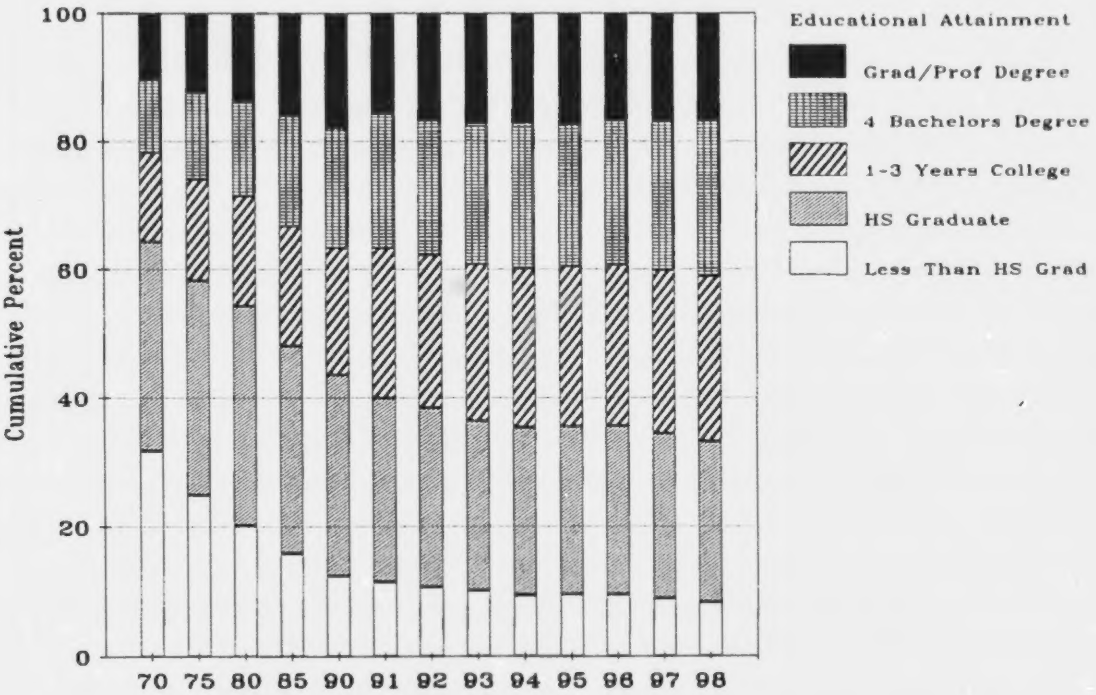
This study was originally suggested by Dr. William Hiss, now Vice President for External and Alumni Affairs, at Bates College in Lewiston, Maine. Bill thought it important to illustrate the importance of higher education to national economic welfare, particularly at the level of the federal government, and he suggested this study to make that point. At the time he was serving as a member of the federal Advisory Committee on Student Financial Assistance.

We first reported this study in the October 1994 issue of OPPORTUNITY (#28). We updated this study in the July 1996 issue of OPPORTUNITY (#49). This is our second update to the original study,

Distribution of Households
by Educational Attainment of Head of Household
1970 to 1998



Distribution of Household Income
by Educational Attainment of Head of Household
1970 to 1998



and largely confirms earlier findings and extends historic trends. However, the extensive pattern of federal tax cuts in the 1990s, like those in the early 1980s, adds some useful insight into the shifting tax responsibilities across levels of educational attainment and household income in the U.S. since our update in 1996.

The Data

This analysis combines data from two sources. The first source is the Current Population Survey (CPS), conducted by the Census Bureau. The CPS gathers data on the incomes of persons, families and households and cross-tabulates these data by educational attainment. This CPS is conducted monthly to gather data on employment and unemployment on a national sample of about 50,000 households. A demographic supplement in March of each year gathers income data for the prior calendar year and educational attainment data from households. The results are published by the Census Bureau in paper reports in the P60 series on personal income and in the P20 series on educational attainment.

U.S. Census Bureau. Current Population Reports, P60-206. *Money Income in the United States: 1998.* U.S. Government Printing Office, Washington, DC, 1999.

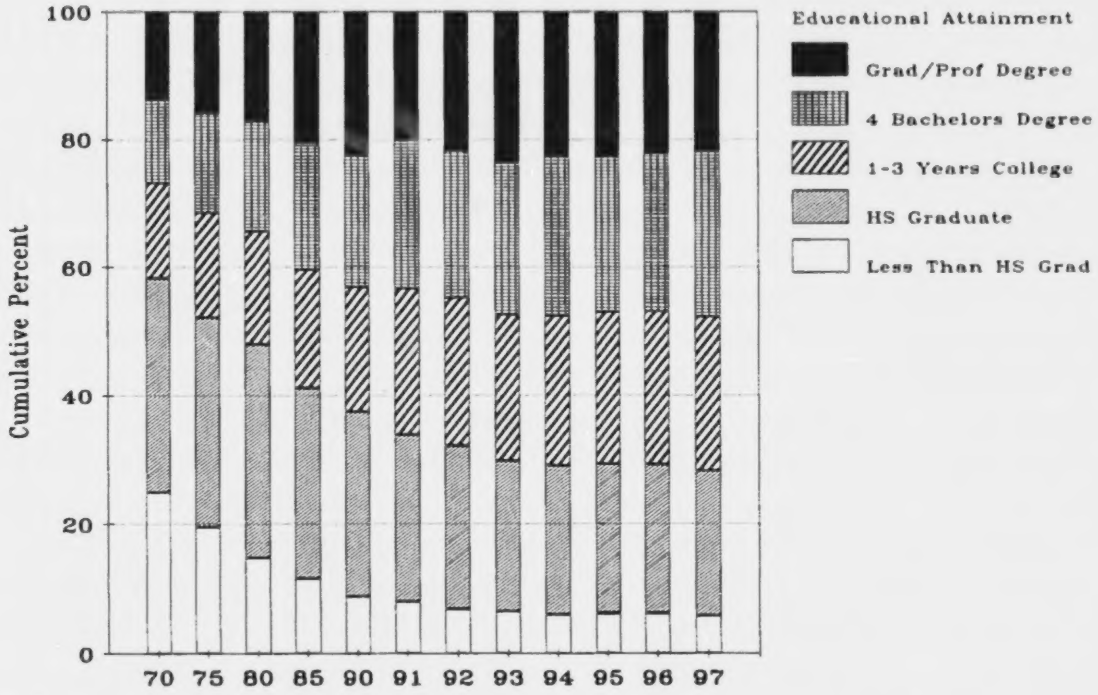
U.S. Census Bureau. Current Population Reports, P20-513. Educational Attainment in the United States: 1998. U.S. Government Printing Office, Washington, DC, 1998.

These reports and a rich array of useful historical tables are available on the Census Bureau's website at:

http://www.census.gov/hhes/www/income.html

The second source used in this study is the Internal Revenue Service (IRS) annual analysis of individual income tax returns. This report contains data on sources of income, adjusted gross income, exemptions, deductions, taxable income, income tax, modified income tax, tax credits, self-employment tax and tax payments by size of income. In particular we have used Table B in this report to calculate (interpolate) federal income tax rates on household income by level of

Distribution of Federal Individual Income Taxes Paid by Educational Attainment of Head of Household 1970 to 1997



educational attainment of the householder and presumed income tax filer.

Internal Revenue Service. Statistics of Income-1997. *Individual Income Tax Returns*. Washington, DC, 1999.

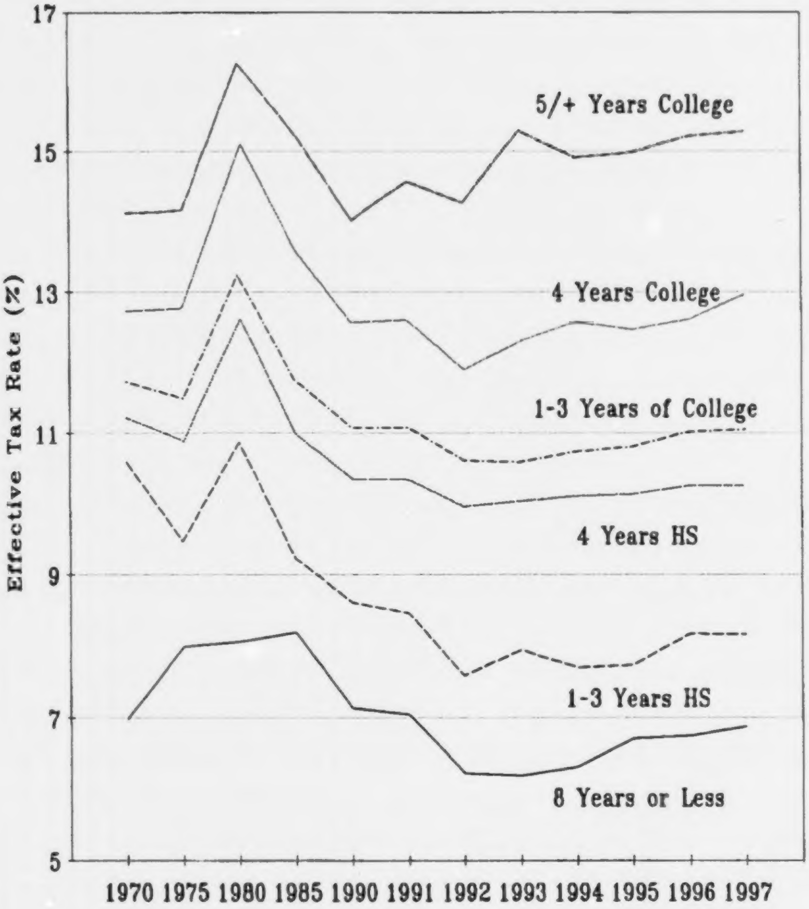
The merging of these two different data sources poses some modest definitional difficulties. What the Census Bureau views as total household income is not quite the same as what the IRS considers total income to be. Also the Census Bureau's households are not the same as the individual income tax filer. We explore these differences in a later section of this report. These differences do not appear to be fatal to our analysis.

Households and Income by Educational Attainment

In 1998 there were 98,104,000 households in the United States. The Census Bureau defines a household as all people who occupy a housing unit. A house, an apartment or other group of rooms, or a single room is regarded as a housing unit when it is occupied or intended for occupancy as separate living quarters. A household includes the related family members and all unrelated people, if any, such as lodgers, foster children, wards or employees who share the housing unit. The count of households excludes group quarters. The householder is the person in whose name the housing unit is owned or rented. If more than one person holds title to the housing unit, any such person could be identified as the householder.

These households had a total of $5,207,752,700,000 in income in 1998, or an average of $53,084 or median of $40,296 each. Again, the Census Bureau defines income broadly to include money income from: earnings, unemployment compensation, workers' compensation, Social Security, Supplemental Security Income, public assistance, veterans' payments, survivor benefits, disability benefits, pension and retirement income, interest, dividends, rents/royalties/estates/trusts, educational assistance, alimony, child support, financial assistance from outside of the household and other income.

Across levels of educational attainment of householders, average family income in 1998 ranged from $23,501



Average Effective Federal Income Tax Rates
by Educational Attainment of Head of Household
1970 to 1997

among families where the householder had less than a ninth grade education, to $127,499 among families where the householder held a professional degree from college (doctor, lawyer, dentist, veterinarian, etc.). Across the same levels of educational attainment, median household income ranged from $16,154 to $95,309.

The first chart shows mean and median household income in 1998 by educational attainment of the householder. The relationship is clear: more education leads to greater income and the higher living standards that greater income supports. Another important interpretation is that most of the income of households at the lower end of educational attainment is necessarily focused on meeting basic survival needs. At the other end of the educational attainment spectrum, most income is discretionary. People have more choices to make because they have more resources than they need to meet basic survival needs.

Trends

Over time real median family income has increased quite modestly, rising from $37,725 in 1973 to $38,785 by 1997 before jumping to $40,296 in 1998. Real average family incomes increased from $43,223 in 1973 to $53,084 in 1998.

However, since the early 1970s, the real (inflation adjusted) incomes of households at different levels of educational attainment have diverged. As shown in the second chart, real incomes of households at lower levels of educational attainment have declined, while the real incomes of households at the higher levels of educational attainment have increased. Because income measures living standards, the lot of the least educated has deteriorated while the welfare of the best educated has improved, substantially.

Quite significantly, past expansions in higher educational opportunity (e.g. the GI Bill after World War II, the equity era between 1965 and 1980, and the human capital era from the early 1970s through the present) have lead to a very large increase in the proportion of households headed by persons with at least some higher education, and a corresponding decrease in the proportion of households headed by persons with no higher education.

- Between 1970 and 1998, the proportion of households headed by persons with at least some college education increased from 24.4 to 52.0 percent. So the proportion of households headed by a person with only a high school education or less declined from 75.6 to 48.0 percent.
- During this same period, the proportion of households headed by a person with at least a bachelors degree from college increased from 13.6 to 26.2 percent. So the proportion of households headed by a person with less than a bachelor's degree decreased from 86.4 to 73.8 percent.

Distribution of Households, Income and Federal Income Taxes Paid by Educational Attainment of Head of Household
1970-1998

Educational Attainment	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998
Households													
Number in Thousands	64,372	72,867	82,368	88,458	89,429	90,810	91,369	91,842	93,546	94,346	95,857	97,093	98,106
Less than 8 Years	14.0%	11.5%	9.4%	7.5%	11.3%	10.3%	9.9%	9.3%	8.8%	8.5%	8.0%	7.6%	7.2%
8 Years	12.8%	9.7%	7.9%	6.5%									
1 to 3 Years HS	16.4%	15.3%	14.0%	12.5%	11.3%	11.4%	10.9%	10.6%	10.3%	10.3%	10.4%	10.0%	9.6%
4 Years H. School	31.3%	33.1%	34.6%	35.4%	35.8%	33.2%	32.9%	32.0%	31.7%	31.3%	31.6%	31.7%	31.2%
1-3 Years College	11.8%	14.0%	15.6%	17.3%	18.4%	22.1%	22.9%	24.3%	24.8%	25.1%	25.0%	25.2%	25.8%
4 Years College	13.6%	9.2%	10.2%	11.8%	12.8%	14.5%	14.6%	15.0%	15.4%	15.8%	16.2%	16.6%	17.1%
5/+ Years College		7.2%	8.2%	9.1%	10.4%	8.5%	8.8%	8.7%	9.0%	9.1%	8.9%	9.0%	9.1%
Any College	*25.4%*	*30.4%*	*34.1%*	*38.2%*	*41.6%*	*45.1%*	*46.3%*	*48.0%*	*49.2%*	*49.9%*	*50.1%*	*50.8%*	*52.0%*
4 Years or More	*13.6%*	*16.4%*	*18.5%*	*20.9%*	*23.2%*	*23.0%*	*23.4%*	*23.7%*	*24.4%*	*24.8%*	*25.1%*	*25.6%*	*26.2%*
Total Income													
Amount in billions	$ 644	$ 1,004	$ 1,735	$ 2,571	$ 3,423	$ 3,525	$ 3,653	$ 3,691	$ 4,143	$ 4,345	$ 4,622	$ 4,937	$ 5,208
Less Than 8 Years	8.1%	6.3%	4.9%	3.6%	5.5%	4.8%	4.6%	4.2%	3.9%	3.9%	3.6%	3.4%	3.2%
8 Years	9.3%	6.6%	5.1%	3.9%									
1 to 3 Years HS	14.4%	12.0%	10.2%	8.4%	6.9%	6.7%	6.1%	6.0%	5.5%	5.6%	5.9%	5.5%	5.1%
4 Years H. School	32.6%	33.4%	34.1%	32.2%	31.2%	28.5%	27.8%	26.2%	26.0%	26.0%	26.1%	25.6%	24.9%
1-3 Years College	13.9%	15.8%	17.2%	18.7%	19.8%	23.4%	23.8%	24.4%	24.8%	25.0%	25.1%	25.4%	25.8%
4 Years College	21.8%	13.4%	14.8%	17.2%	18.6%	20.9%	21.0%	21.8%	22.4%	22.2%	22.6%	23.3%	24.2%
5/+ Years College		12.4%	13.7%	16.1%	18.0%	15.7%	16.7%	17.5%	17.4%	17.2%	16.8%	16.8%	16.8%
Any College	*35.6%*	*41.7%*	*45.7%*	*52.0%*	*56.4%*	*60.0%*	*61.5%*	*63.7%*	*64.6%*	*64.4%*	*64.5%*	*65.5%*	*66.8%*
4 Years or More	*21.8%*	*25.9%*	*28.5%*	*33.3%*	*36.7%*	*36.6%*	*37.7%*	*39.3%*	*39.8%*	*39.4%*	*39.4%*	*40.1%*	*41.1%*
Federal Income Taxes													
Amount in billions	$ 70	$ 111	$ 225	$ 306	$ 386	$ 401	$ 399	$ 441	$ 471	$ 495	$ 534	$ 578	
Less Than 8 Years	4.1%	4.1%	2.3%	2.3%	3.5%	3.0%	2.6%	2.3%	2.2%	2.3%	2.1%	2.0%	#DIV/0!
8 Years	6.9%	5.2%	3.9%	2.8%									
1 to 3 Years HS	13.9%	10.2%	8.6%	6.5%	5.3%	5.0%	4.3%	4.2%	3.8%	3.9%	4.1%	3.8%	#DIV/0!
4 Years H. School	33.4%	32.7%	33.2%	29.6%	28.7%	25.9%	25.3%	23.3%	23.1%	23.2%	23.1%	22.5%	#DIV/0!
1-3 Years College	14.9%	16.4%	17.6%	18.5%	19.4%	22.8%	23.1%	22.8%	23.4%	23.7%	23.9%	24.0%	#DIV/0!
4 Years College	26.7%	15.5%	17.2%	19.6%	20.7%	23.2%	22.9%	23.8%	24.8%	24.3%	24.6%	25.8%	#DIV/0!
5/+ Years College		15.9%	17.3%	20.7%	22.4%	20.1%	21.8%	23.7%	22.8%	22.6%	22.1%	21.9%	#DIV/0!
Any College	*41.6%*	*47.7%*	*52.1%*	*58.8%*	*62.6%*	*66.1%*	*67.8%*	*70.3%*	*71.0%*	*70.6%*	*70.6%*	*71.7%*	*#DIV/0!*
4 Years or More	*26.7%*	*31.4%*	*34.5%*	*40.3%*	*43.2%*	*43.3%*	*44.7%*	*47.4%*	*47.6%*	*46.9%*	*46.7%*	*47.7%*	*#DIV/0!*

Federal Income Tax Analysis

To examine the federal income tax contribution of households at different levels of educational attainment, we begin by deriving the effective federal income tax rate at the average level of household income for each level of educational attainment of householder.

This is not a simple task. Households come in different sizes and varying circumstances that affect their federal income tax liability. Here we do not make assumptions about household size nor the characteristics that influence federal income tax liability (other than educational attainment of the householder). Rather, we take households as they are and derive the effective tax rate for the average household income at each level of educational attainment.

The effective federal income tax rate is the total federal income taxes paid divided by the total household income at each level of educational attainment. This rate is derived through interpolation of effective tax rates calculated from Table B of IRS publication 1304.

There is a modest question about the comparability of the IRS and Census definitions of income. IRS uses adjusted gross income and Census uses total income. Without exploring details of the definitions, the following are the totals (in billions) under each definition between 1990 and 1997:

Year	Adjusted Gross Income	Total Income	AGI/ Total Income
1990	$3,405.4	$3,423	99.5%
1991	3,464.5	3,525	98.3
1992	3,629.1	3,653	99.3
1993	3,723.3	3,691	100.9
1994	3,907.5	4,143	94.3
1995	4,189.4	4,345	96.4
1996	4,536.0	4,622	98.1
1997	4,970.0	4,937	100.7
1998		5,208	

Clearly the concepts are sufficiently similar that our use of Census Bureau total income is a good approximation of the IRS' AGI.

The effective income tax rates in 1997 ranged from 6.9 percent of total household income for households headed by a person with less than a ninth grade education, to 17.2 percent of total household income for households headed by persons with a professional degree.

The trends in effective federal individual income tax rates by educational attainment between 1970 and 1997 are shown in the chart on page 10. The sharp upward spike in 1980 was followed by sharp declines through about 1992 (the Republican tax cuts of the early 1980s). Since about 1992 the effective rates have edged upward due to real growth in incomes during the long economic expansion of the 1990s.

Conclusions

This analysis set out to illustrate the importance of higher educational attainment to federal income tax revenues:

- In 1997 households headed by persons with any college comprised 50.8 percent of all households, earned 65.5 percent of all household income, and paid 71.7 percent of all federal individual income taxes.
- In 1997 households headed by persons with 4 years or more of college comprised 25.6 percent of all households, earned 40.1 percent of all household income, and paid 47.7 percent of federal individual income taxes.

Our analyses span the years between 1970 and 1997. Over this period:

- The share of federal individual income taxes paid by households headed by persons with any college education increased from 41.6 to 71.7 percent.
- The share of total income taxes paid by households headed by persons with 4 years or more of college increased from 26.7 to 47.7 percent.

By these gross measures, the federal government is clearly and increasingly dependent on the earnings of college-educated workers for the bulk of its tax revenues.

But a more interesting analysis separates the sources of this growth into the contribution of gains in the number of households from the gains in educational attainment of household heads.

- Between 1970 and 1997, federal individual income tax revenues increased from $70 to $578 billion. In constant 1997 dollars, the increase was from $289 to $578 billion, or a real increase of $289 billion.
- During this period, the growth in the number of households and their incomes--+50.8 percent--accounts for $146.8 billion of this increase.
- Gains in educational attainment contributed the remaining $142.2 billion increase--+49.2 percent--in federal income tax revenues between 1970 and 1997.

That is to say, nearly half of the real gains in federal individual income tax revenues to the federal government between 1970 and 1997 were produced from the higher incomes of the better educated household heads in 1997 compared to 1970. There are comparable gains to consumer buying power and state/local tax revenues attributable to better educated/higher income consumers as well.

* * *

The complete analysis of Census and IRS data on which this report is based is available on our website under the Spreadsheets button at:

http://www.postsecondary.org

Changing Industrial Employment and Implications for Educational Attainment and Gender
1939 to 1999

I made it with a high school diploma. If it was good enough for me, its good enough for my kids. No! One of the most important realizations most parents have come to is that the educations they received in their youth are no longer adequate for their own children. Public opinions polls consistently report parental aspirations that their children go on to college after high school.

One of the striking features of the American economy is the huge shift in employment by industry since the end of World War II.

- The proportion of nonagricultural employment in goods producing industries has declined from a peak of 47.4 percent in 1943 to a low of 19.8 percent by 1999.
- The proportion of jobs in the private service industries has grown from a low of 38.3 percent in 1943 to a peak of 64.6 percent by 1999.
- The proportion of jobs in government/public service increased from 12.8 percent in 1941 to a peak of 19.1 percent in 1975, and has since declined to 15.7 percent in 1999.

These changes are shown in the chart on this page. The data reflect enormous shifts in the industrial employment structure of the United States over the last sixty years. And as judged by the trend lines in the graph, these shifts are likely to continue into the future.

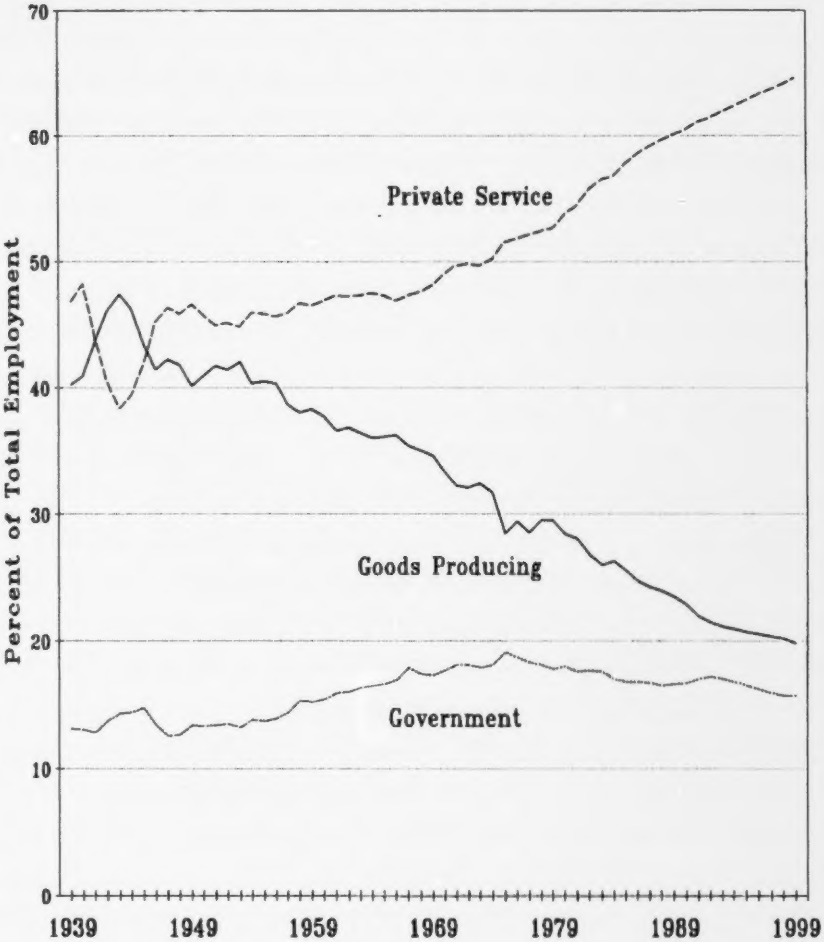
There are many profound implications to these great sea changes occurring in the American economy. We focus on two.

First, these changes impact men and women quite differently. Male employment opportunities are adversely affected by the shrinking share of jobs in goods producing industries, particularly manufacturing. For decades males have been about three-quarters of those employed in goods-producing industries. As the share of total employment in goods-producing industries shrinks, so too do male employment prospects.

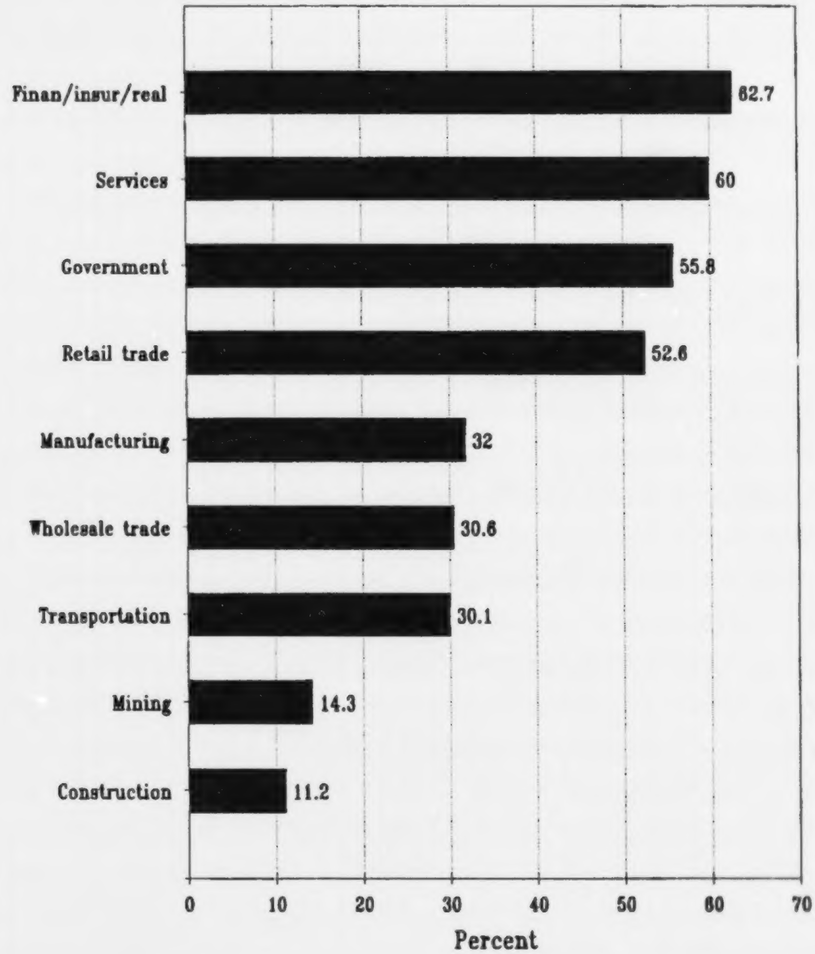
On the other hand, employment prospects for women expand with the expanding share of jobs in private service industries. Women have held over half of these jobs since 1982. Not only has their share of private service jobs expanded, but so too has the share of all jobs in private service industries.

Not only have women taken over a major of the jobs in private service industries, so too have they taken over

Distribution of Nonagricultural Employment by Industry
1939 to 1999



Proportion of Jobs Held by Women by Industry
1998



a majority of the jobs in government. Although government employment has represented a shrinking share of total employment since 1975, since then the share of all jobs here held by women has increased from 44 to 56 percent.

The other sea change buried in these data is the escalating educational attainment requirements of this new industrial labor economy. Educational attainment requirements for workers in goods producing industries are relatively low. So the low skill/high wage economy is shrinking as a share of total employment.

But job share growth is occurring in industrial sectors employing higher educated workers. This means more jobs for better educated workers, and fewer for less well educated workers, particularly at higher wage rates. In this brief analysis we present updated data on the changing industrial employment structure of the U.S.

The Data

Data used in this analysis are collected by the Bureau of Labor Statistics in the normal course of monitoring employment and unemployment in the U.S. Data used here were provided by Sharon Cohany at BLS, either directly or from the BLS website with Sharon's assistance.

http://stats.bls.gov

These data are nonagricultural payroll employment data reported by industry. The industrial classifications used by BLS are (somewhat edited):

- Goods-producing industries
  - Mining
  - Construction
  - Manufacturing
    - Durable goods
    - Nondurable goods
- Private service-producing industries
  - Transportation & public utilities
    - Transportation
    - Communications/public utilities
  - Wholesale trade
    - Durable goods
    - Nondurable goods
  - Retail trade
    - Eating/drinking places
    - Food stores
    - General merchandise stores
    - Car dealers/service stations
    - Other retail trade
  - Finance/insurance/real estate
    - Finance
    - Insurance
    - Real estate
  - Services
    - Health services
    - Business services
    - Engineering/management serv
    - Social services
    - Membership organizations
    - Hotels/lodging
    - Educational services
    - Amusement/recreation
    - Other services
- Government
  - Federal
  - State
    - Education
  - Local
    - Education

Employment by Industry

In 1999 there were 128,786,000 workers on nonagricultural payrolls.

This was twice the number of workers that there were in 1966, three times the number in 1947, and four times the number in 1940.

Within the 1999 total, jobs were distributed across industries as follows:

Goods producing	19.8%
Mining	0.5%
Construction	5.0%
Manufacturing	14.4%
Private services	64.6%
Transportation	5.3%
Wholesale trade	5.4%
Retail trade	17.7%
Finan/insur/real estate	5.9%
Services	30.3%
Government	15.7%

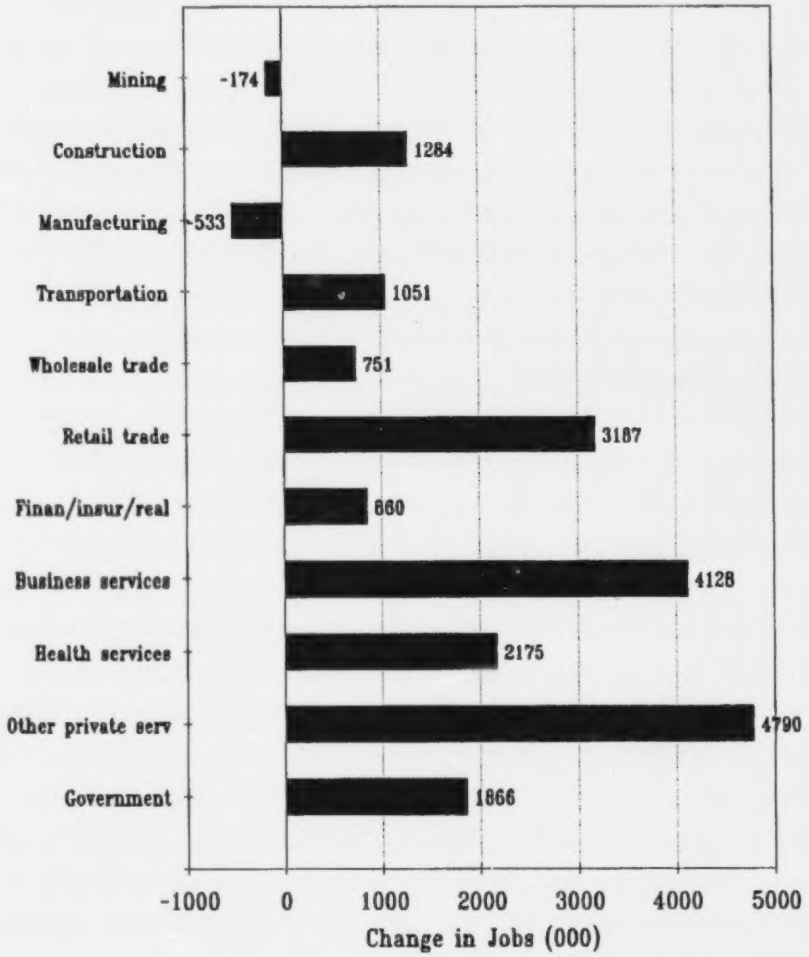
The largest category above--services--includes many industries. About a quarter of the total is in health services (hospitals, clinics and doctors' offices, and nursing and personal care facilities), nearly another quarter is in business services (personnel supply services, computer/data processing, building services), and the rest are in engineering/management, social services, membership organizations, amusement/recreation, education, legal, auto repair/service/parking, and other industries. Over 40 percent of government employees are in education.

Change Over Time

As suggested by the chart on the previous page, there are very large, very long-term shifts in the distribution of industrial employment in the U.S. Over the last sixty years, goods-producing industries have declined while private service-producing industries have grown as a share of the total.

By far the largest loser has been manufacturing. From a peak of 41.5 percent of all jobs in 1943, manufacturing's share of total employment has shrunk steadily to 14.4 percent by 1999. This decline shows only weak signs of abating.

Change in Employment by Industry
1990 to 1999



Other industries that have shown much smaller declines in employment shares include mining, transportation, wholesale trade and government.

By far the largest growth area has been services, within private service-producing industries. This has gone from less than 10 percent of all jobs during World War II, to 30.3 percent by 1999. Growth here shows no signs of abating.

Within services, half of all employment is health or business related.

As shown in the chart on this page, during the 1990s the number of job holders increased by 19,383,000 or 17.7 percent between 1990 and 1999.

- Goods-producing industries increased employment by 577,000 (+2.3 percent).
- Private service-producing industries added 16,941,000 jobs (+25.6 percent).
- Government employment grew by 1,866,000 or 10.2 percent.

Clearly the growth area has been in private service-producing industries. Here all areas increased, but only transportation and services increased faster than the total jobs increase between 1990 and 1997.

And the increase in services alone was +39.7 percent. This large but single industry group, that has 30.3 percent of all jobs in 1999, accounted for 57.2 percent of the increase in the number of jobs between 1990 and 1999. Within services, health and business services account for 49 percent of all services jobs. Between 1990 and 1999 they accounted for 57 percent of job growth in services.

Particular mention of growth in jobs in business services is called for here. Between 1958 and 1999, while total jobs increased by 151 percent, the increase in business services jobs was an astounding 1570 percent. The number of jobs in business services grew from 555,000 in 1958 to 9,266,800 by 1999.

Another area of particular interest to readers of OPPORTUNITY is employment in education. The BLS data count 11,515,800 people employed in the education industry. Twenty percent are employed in the private services sector, another 17 percent are employed by state government, and the remaining 63 percent are employed by local governments. Between 1990 and 1999, the number employed in private service increased by 37 percent, by 14 percent in state government, and by 20 percent in local government. Clearly education employment is shifting from government to private industry in the 1990s.

Employment continues to shift sharply from goods-producing and government to the private service-producing industries. The real growth, above and beyond the total growth rate, has been in services like business, health, educational (outside of government) and other privately provided services.

The shrinkage in goods-producing jobs hurts both because it hits males hard and because these jobs are relatively highly paid. In 1999 average weekly earnings in mining was $749, in construction $672 and manufacturing $580. Private services jobs paid less: transportation $607, wholesale trade $558, retail trade $263, FIRE $529, and services $435. Within these services, however, are highly paid legal, health care, engineering, management and other service workers with substantial amounts of higher education.

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Postsecondary Education
OPPORTUNITY

The Mortenson Research Seminar on Public Policy Analysis of Opportunity for Postsecondary Education

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Educational Attainment in the Human Capital Economy

The United States has been moving into the human capital economy since the early 1970s. Increasingly human welfare is determined by products of the labor of college educated workers. This holds true beginning with individuals. It also holds true for all aggregations of individuals in families, households, cities, states and the country. Increasingly, this is also true for the world's population.

*In this issue of **OPPORTUNITY**, we focus on educational attainment--who has it and who does not. Our first analysis examines educational attainment data for individuals and the second analysis looks at states. We examine data in patterns across population groups, and trends over time.*

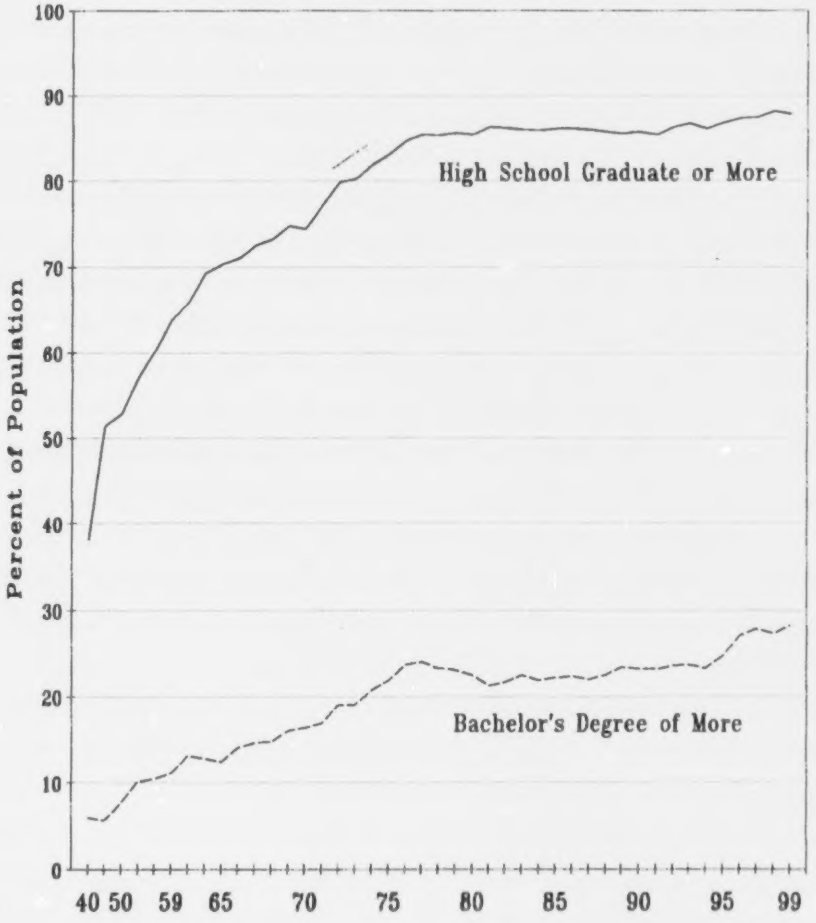
What our analyses show may be summarized in a few major points:

- In the aggregate, gains in educational attainment have been very small over the last 25 years.
- However, certain population groups have made significant progress in educational attainment over this period, notably women, whites and blacks.
- Other groups are notable for their lack of progress in educational attainment over the last 25 years. These are males and Hispanics.

Beyond these gross findings, however, are more interesting, dicier and disturbing details.

- In 1999, for the first time in history, a larger proportion of blacks than whites between 25 and 29 years were at least high school graduates.
- The fastest growing population group in the U.S.--the Hispanics--have made no significant gains in either high school graduation or 4-year college graduation rates during

Persons 25 to 29 Years Who Have Completed High School or More and Bachelor's Degree or More 1940 to 1999



the last two decades.

- There is some reason to believe educational attainment is plateauing in the U.S., and that further gains in educational attainment required by the growing segments of the economy and labor force may not be met.

Since the early 1970s, educational attainment has come increasingly to determine income and the living standards that income determines. Thus, issues of stagnation in aggregate educational attainment and the redistribution of educational attainment across population groups are, today, determining changes in future living standards. Some groups have far brighter futures than do other groups. And it all relates back to educational attainment through high school and college.

The Data

Most of the data reported here are collected in the Census Bureau's March Current Population Survey. The CPS is a monthly survey of about 50,000 U.S. households. The main purpose of this survey is to gather data on employment and unemployment. In March of each year additional questions are asked of households about the educational attainment of household members.

These data are then reported in Current Population Reports in the P20 series from the CPS. The most recent report was issued by the Census Bureau in August:

Newburger, E. C., and Curry, A. "Educational Attainment in the United States, Population Characteristics-March 1999." *Current Population Reports*. P20-528. Issued August 2000. Washington DC: U.S. Census Bureau.

The report and accompanying detail tables are available for downloading from the Census Bureau's website at:

http://www.census.gov/population/www/socdemo/educ~attn.html

Also, the Census Bureau has posted .pdf files of the entire series of Current Population Reports on educational attainment since 1940 on this web page.

There are several data definition issues that the reader should keep in mind.

First, in the early 1990s the Census Bureau changed the way it measures educational attainment. Through 1991, educational attainment was measured in terms of years of school completed. Beginning in 1992 educational attainment means highest degree completed. Because the time-series examined and reported here span these two periods, we assume (as does Census) that completing four years of high school prior to 1992 now equates to a high school graduate. Also, completing four years of college prior to 1992 now equates to completing a bachelor's degree.

Second, a more serious data definition issue is the way the Census Bureau counts and reports high school graduates. Census counts GED recipients as high school graduates. We count GED recipients as high school dropouts who have passed a test. As we have reported in OPPORTUNITY (#87 September 1999), the public high school graduation rate measured as the proportion of ninth graders who receive a regular high school diploma is far below that reported by Census and has been declining since 1983. A growing share of ninth graders have pursued the GED alternative to the high school diploma.

Census is aware of this issue and has collected, but not published, data on GED versus diploma recipients for about a decade. Lack of confidence

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Mission Statement

This research letter is founded on two fundamental beliefs. First, sound public social policy requires accurate, current, independent, and focused information on the human condition. Second, education is essential to the development of human potential and resources for both private and public benefit. Therefore, the purpose of this research letter is to inform those who formulate, fund, and administer public policy and programs about the condition of and influences that affect postsecondary education opportunity for all Americans.

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Password: JeffreyLee

by Census in what CPS respondents have reported has so far led to a decision not to publish these data separately.

A third definition issue is related to the chart on this page: the confusion between earnings and income. We follow the Census Bureau's definition of income, which includes the following:

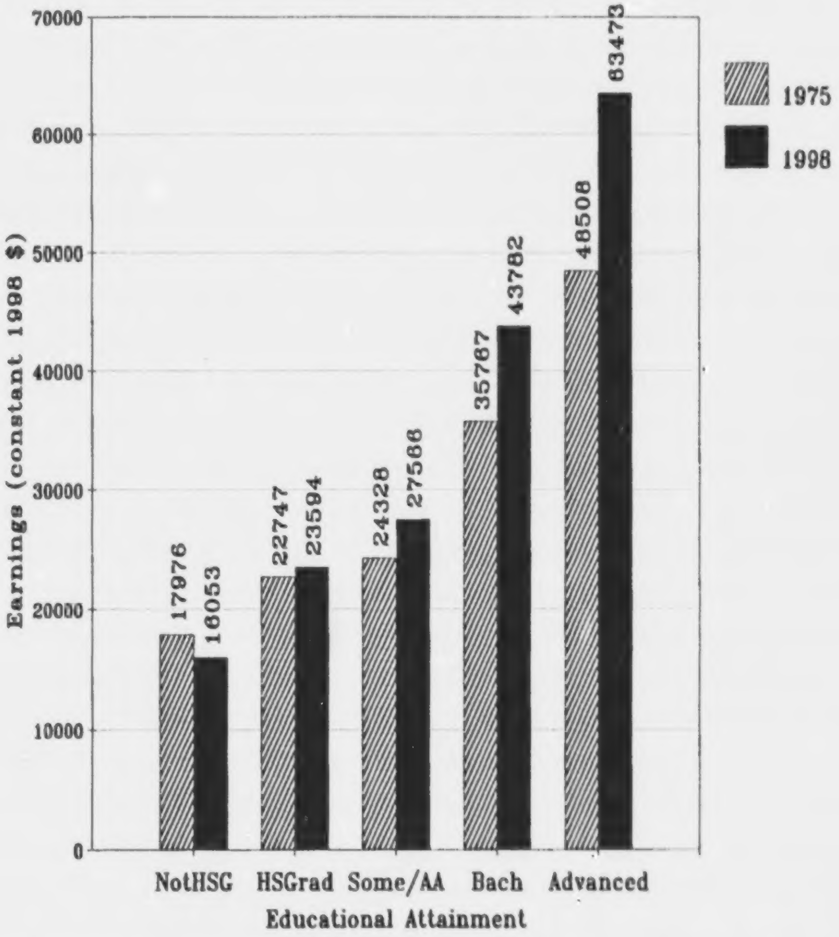
1. Earnings
2. Unemployment compensation
3. Worker's compensation
4. Social security
5. Supplemental security income
6. Public assistance
7. Veterans' payments
8. Survivor benefits
9. Disability benefits
10. Pension and retirement income
11. Interest
12. Dividends
13. Rents, royalties, estates and trusts
14. Educational assistance
15. Alimony
16. Child support
17. Financial assistance from outside of the household
18. Other income

What the Census Bureau calls "earnings" (from employment) most people usually think of as income.

Educational Attainment Overview

In March of 1999 there were 173,754,000 people in the U.S. age 25 and over. Of this total, 83.4 percent were a high school graduate or more, 50.1 percent had some college or more, and 25.2 percent had a bachelor's degree or more.

Average Annual Earnings for Persons
18 Years and Over by Educational Attainment
1975 and 1998



Here we encounter a stock versus flow problem in presenting the data on educational attainment. Due to recent gains in educational attainment, the additions to the U.S. stock of human capital are greater than the deductions due to mortality. Thus the educational attainment of the population age 25 and over will normally be less than the educational attainment of the population between the years of 25 and 29. Because of our interest in monitoring and reporting on the progress in educating young people for participation in the human capital economy, we focus on the 25 to 29 year olds and their educational attainment. We are interested in comparisons of educational attainment between population groups, and trends over time that add to stock.

In March of 1999 there were 18,639,000 people between the ages of 25 and 29 years in the United States. Of this number, 87.8 percent were at least high school graduates, 58.0 percent had some college or more, and 28.2 percent had a bachelor's degree or more from college.

Earnings

The chart on this page illustrates the importance of educational attainment to earnings from employment. In 1998 (the year prior to the March 1999 Current Population Survey), average annual earnings for people 18 years and over with earnings ranged from $16,053 for those who had not completed high school to $63,473 for those who had completed a college degree beyond the bachelor's degree.

The average annual earnings for high school graduates was $23,594, compared to $43,782 for those with a bachelor's degree. The annual difference is $20,188, or about $808,000 over a 40 year working lifetime.

Between 1975 and 1998 the real (inflation adjusted) average annual earnings declined for those who were not high school graduates and increased at each higher level of educational attainment. At these higher levels, the increase in real earnings was greatest at the highest level of educational attainment.

In 1975 the annual earnings differential (in 1998 dollars) between high school graduates and those with bachelor's degrees was about $13,020. Over a 40 year working lifetime, this converted to a $520,000 benefit to the college-educated. Thus, the lifetime earnings premium for a college education increased by about $288,000 between 1975 and 1998.

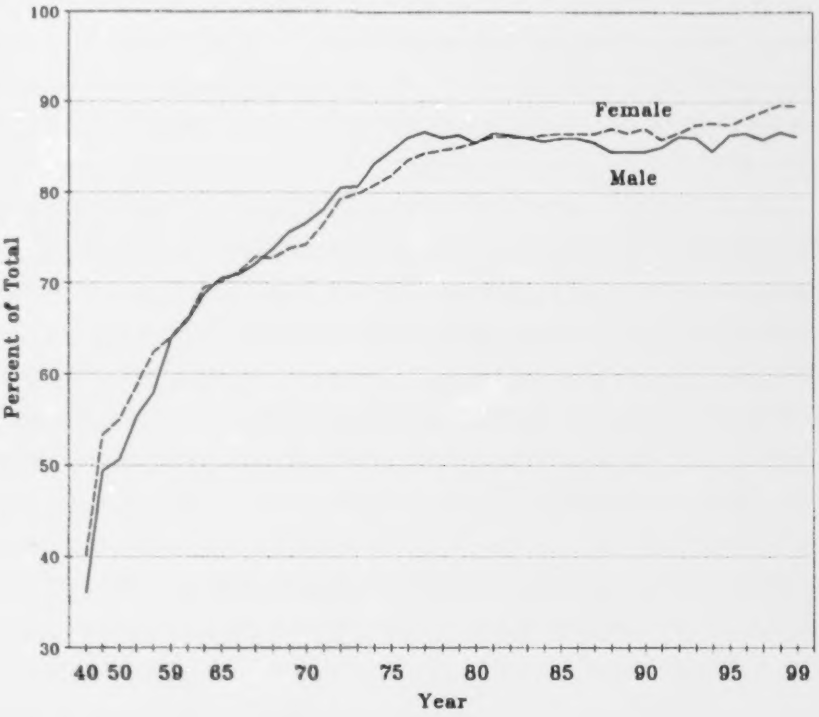
Calculated as percentage changes, the real earnings changes between 1975 and 1998 were as follows:

Not high school graduate	-10.7%
High school graduate	+3.7%
Some college/associate degree	+13.3%
Bachelor's degree	+22.4%
Advanced degree	+30.9%

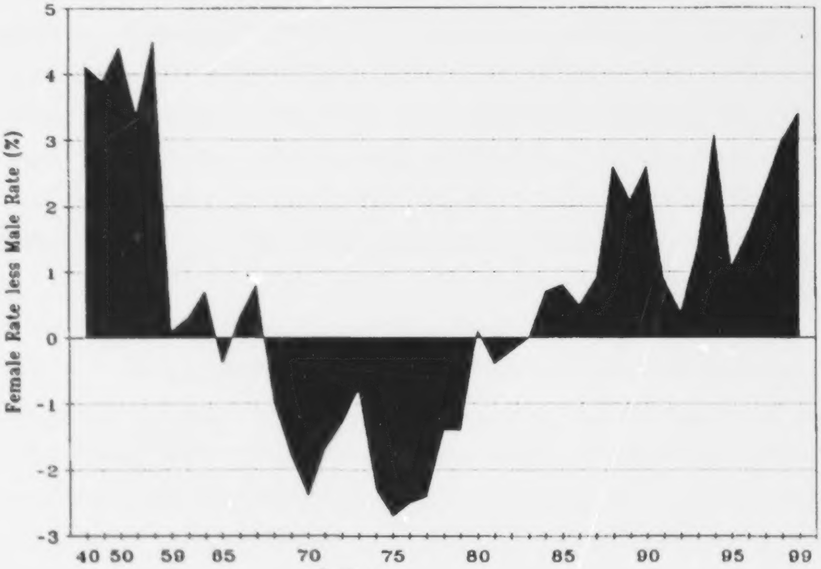
The messages in these data are clear:

- Earnings increase with educational attainment.
- Between 1975 and 1998 incomes have shifted sharply up the scale of educational attainment.
- Compared to the market value of a high school diploma, the value of a bachelor's degree has increased significantly between 1975 and 1998.

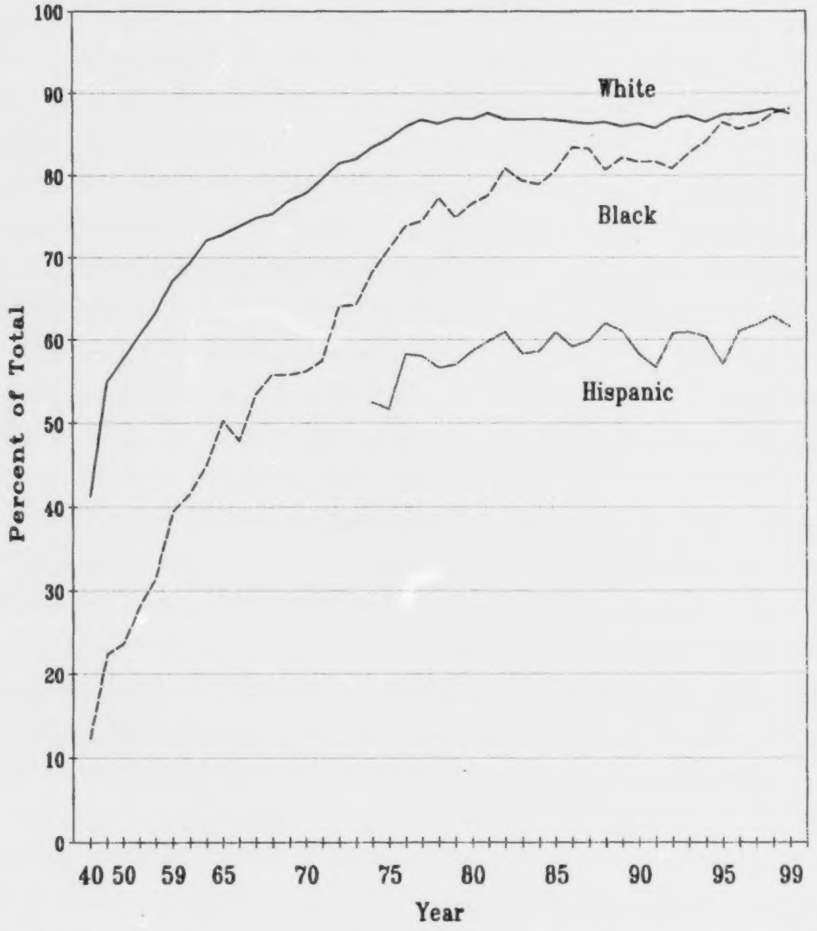
Persons 25 to 29 Years Who Have Completed High School or More by Gender 1940 to 1999



Difference Between Males and Females in the Percent of 25 to 29 Year Olds Who Have Completed High School Selected Years: 1940 to 1999



Persons 25 to 29 Years Who Have Completed High School or More by Race/Ethnicity Selected Years: 1940 to 1999



In fact our interpretation of these data follow a conventional microeconomic demand and supply model. The labor market is somewhat over-supplied with insufficiently educated workers, and significantly under-supplied with workers at the level of bachelor's degree and above. Expressed another way, the production of college-educated workers by America's colleges and universities has failed to keep up with the growing educational attainment needs of the labor force.

High School Graduation

High school graduation is the ticket out of poverty (see next article). It is not sufficient for engagement in the human capital economy and probably hasn't been since the early 1970s. But so far at least high school graduation status provides enough earnings to escape poverty circumstances.

In March of 1998 16,362,000 out of 18,639,000 25 to 29 year olds were at least high school graduates. That is 87.8 percent of the population in this age range.

Of course the high school graduation rate in this age range varied by gender, race/ethnicity, and all of the other ways of disaggregating the populations into different groups.

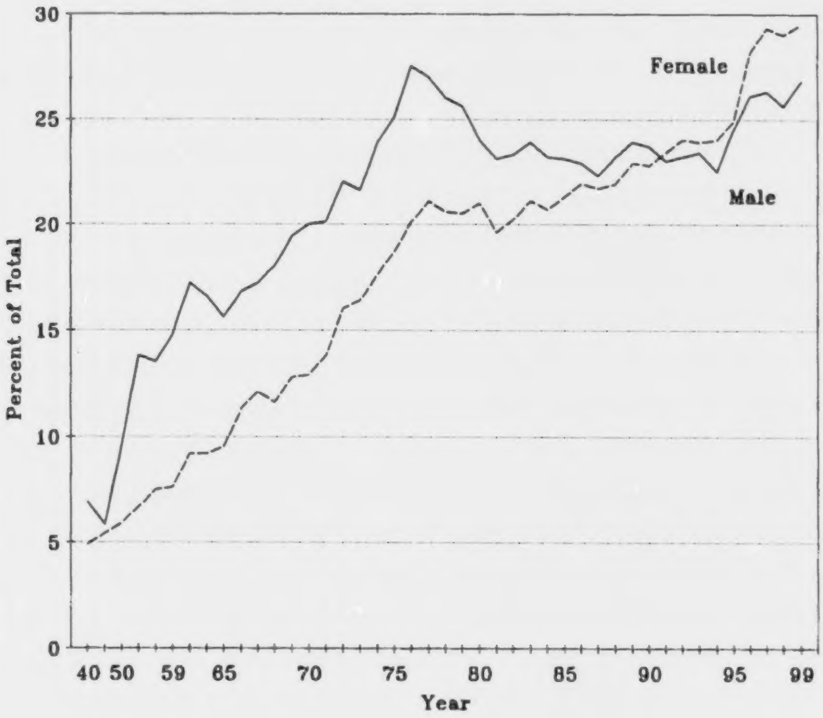
Gender. As shown in the two charts on the preceding page, the high school graduation rate for females has been greater than that for males since 1983. In 1999 86.1 percent of the males and 89.5 percent of the females were at least high school graduates.

As the second chart on the preceding page shows, since 1975 females have been increasing their high school graduation rate compared to males. In the mid 1970s females lagged males by about 2.5 percentage points, but by the late 1990s they were about 3 percentage points ahead of the boys. Although these data are spiky, the trend is clear: for the last 25 years young women have made substantial progress in high school graduation compared to men their age, and in 1984 moved past men. They continue to pull away from males in the late 1990s.

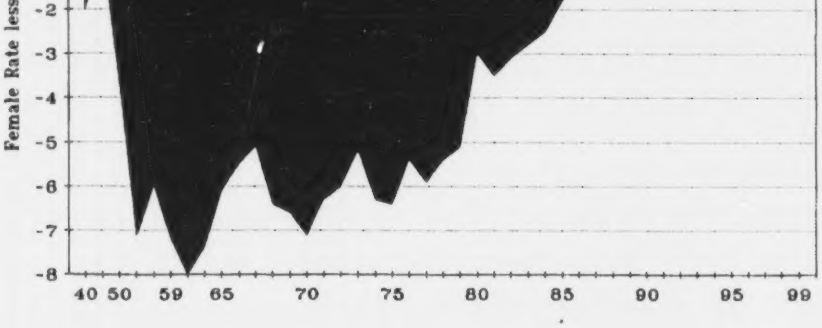
Race/ethnicity. The chart on this page shows the proportion of the 25 to 29 year olds that are at least high school graduates by race/ethnicity since 1940. In 1999, the high school graduation rate for whites was 87.6 percent **compared to 88.2 percent for blacks** and 61.6 percent for Hispanics.

Yes, you read it right: for the first time in the history of the Current Population Survey, and probably ever, the proportion of blacks between 25 and 29 years that were high school graduates exceeded the rate for whites. The gap in high school graduation rates between blacks and whites was 27.7 percentage points in 1959 (67.2 percent for whites, compared to 39.5 percent for blacks). By 1970 the gap had closed to 21.6 points. By 1980 it had closed to 10.3 points, and to 4.6 points by 1990. In 1998 blacks were just 0.5 percentage points below whites, and by March of 1999 blacks

Persons 25 to 29 Years Who Have Completed 4 Years of College or More by Gender Selected Years: 1940 to 1999



Difference Between Males and Females in the Percent of 25 to 29 Year Olds with Bachelor's Degrees Selected Years: 1940 to 1999



surpassed whites by 0.6 percentage points.

It is probably impossible to overstate the magnitude of this achievement. In 1950 just 23.6 percent of all blacks between 25 and 29 years were at least high school graduates. Forty-nine years later this had increased to 88.2 percent. Stunning, simply stunning. It demonstrates the power of a community's will to educate its youth.

Hispanics, on the other hand, have made very little progress in high school graduation rates during the last two decades. In 1999 61.6 percent of all Hispanics between 25 and 29 years had at least a high school education. Since 1976 this represents a gain of 3.5 percent, compared to a gain of 14.4 percent of blacks and 1.7 percent for whites.

Beginning with the report on the March 1999 Current Population Survey, Census began repackaging its racial ethnic data. In this new categorization, the high school graduation rates for 25 to 29 year olds are as follows:

Non-Hispanic white:	93.0%
Non-Hispanic black:	88.7%
Non-Hispanic Asian/PI:	93.4%
Hispanic:	61.6%

Some College or More

In March of 1999, out of a population of 18,639,000 25 to 29 year olds, 10,817,000 had at least some college education. This was 58.0 percent of the population, and 66.1 percent of those who had graduated from high school.

Gender. Among 25 to 29 year olds, 54.7 percent of the men and 61.2 percent of the women had at least some college education. Among the men, of those who had graduated from high school, 63.5 percent had gone on to college, compared to 68.5 percent for women.

Race/ethnicity. Among 25 to 29 year olds, 58.1 percent of whites had at least some college, and 66.3 percent of white high school graduates had gone on to college. Among blacks in the same age range, 51.2 percent of the population and 58.2 percent of high school graduates had enrolled in college. Among same age Hispanics (who may be of any race), 31.2 percent of the population had any college experience, and 50.6 percent of high school graduates had gone on to college.

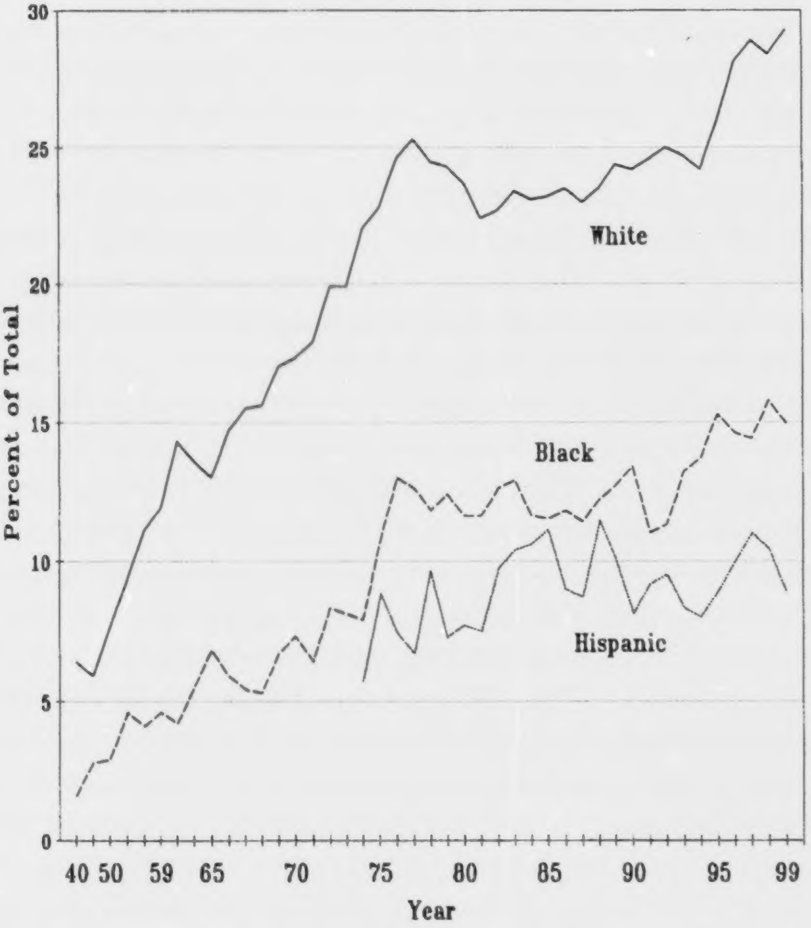
Using the Census Bureau's non-Hispanic racial classifications, among 25 to 29 year old non-Hispanic whites, 63.9 percent of the population had enrolled in college, and 68.7 percent of the high school graduates had enrolled in college. Among non-Hispanic blacks, 51.2 percent of the population had some college, and 57.8 percent of the high school graduates had gone on to college. Among the non-Hispanic Asian and Pacific Islanders, 78.8 percent of the population had at least some college, and 84.4 percent of the high school graduates had gone on to college.

Bachelor's Degree or More

In March of 1999, out of 18,639,000 people, 5,257,000 or 28.2 percent had a bachelor's degree or more from college. 4,245,000 had at least a bachelor's degree, 748,000 had at least a master's degree, 171,000 had a professional degree and 93,000 had a doctorate. While the numbers with bachelor's degrees will rise much further, the numbers with advanced degrees will rise into the early 40s.

Again, bachelor's degree attainment rates vary by gender and race/ethnicity, as follows.

Persons 25 to 29 Years Who Have Completed 4 Years of College or More by Race/Ethnicity Selected Years: 1940 to 1999



Gender. As shown in the charts on the previous page, women are now more likely than men to hold a bachelor's degree by age 25 to 29. In 1999, 29.5 percent of the women held at least this degree, compared to 26.8 percent of the men.

For men, the proportion in 1999 was still below proportions reached in 1976 (27.5 percent) and 1977 (27.0 percent), following the Vietnam War. So, between 1976 and 1999, the proportion for men *declined* by 0.7 percent, while during the same period the proportion of 25 to 29 year old women with bachelor's degrees *increased* by 9.4 percent.

As the second chart on the previous page shows, women made great progress closing the gap with men between about 1961 when they were 8 percent behind men, to 1991 when for the first time they surpassed men by 0.4 percent. Since 1991 men have made some progress (+3.4 percent), but women have made more progress (+6.1 percent). The feeders to these numbers--high school graduation, college continuation, college completion--are all working in women's favor to a greater degree than they are men. Thus, for the foreseeable future, the gender gap will continue to widen.

Race/ethnicity. Beginning with the 1999 report, the Census Bureau began reporting the proportion of the population 25 to 29 years that had completed a bachelor's degree by distinct racial/ethnic categories. The results were as follows:

Non-Hispanic whites	33.6%
Non-Hispanic blacks	15.0%
Non-Hispanic Asian/Pacific Isl	51.3%
Hispanics	8.9%

For the first time in this series, Asian/Pacific Islanders were separately identified. The educational attainment levels for young Asians are stunning--they are nearly twice the national average. Over half have a bachelor's degree, compared to a third for NH whites. At the bottom of the scale are Hispanics, where less than one in eleven has a bachelor's degree by the time they are 25 to 29 years.

The chart on page 7 shows the trends to these data since 1940 by the traditional/former racial ethnic categories used by Census. Only for whites did the bachelor's degree completion rate increased between 1998 and 1999, from 28.4 to 29.3 percent. For blacks and Hispanics the rates declined. For blacks the decline was 15.8 to 15.0 percent. For Hispanics the decline was from 10.4 to 8.9 percent.

For both whites and blacks, bachelor's degree attainment rates have increased in the second half of the 1990s, following two decades of no real growth.

For Hispanics there is no real growth evident in the trend data over the last two decades. The bachelor's degree attainment is the lowest of any group, and not increasing for Hispanics.

Educational Attainment Projections

A number of organizations produce projections of educational statistics, including high school graduates and associate, bachelor, masters, doctors and first professional degrees. These are useful for manpower planning, and often provide important policy insights about the size, geographic distribution, and demographic characteristics of educational products. Three are reviewed here.

Western Interstate Commission on Higher Education. WICHE has gathered state public school enrollment data by race/ethnicity for the purpose of making projections of high school graduates by race/ethnicity by state.

Western Interstate Commission on Higher Education and The College Board. (February 1998.) *Knocking at the College Door: Projections of High School Graduates by State and Race/Ethnicity, 1996-2012.* Boulder, CO.

These projections were made by the straightforward cohort survival method. Their main value is that they have alerted policy makers to the rapidly changing racial/ethnic mix of cohorts of high school graduates. In many states any growth in high school graduates will be among minority groups, particularly Hispanics, in the near future.

National Center for Education Statistics. NCES recently published its annual projection of educational statistics through 2009.

Gerald, D.E., and Hussar, W.J. (September 1999.) *Projections of Education Statistics to 2009.* NCES 1999-038. Washington, DC: U.S. Department of Education, National Center for Education Statistics.

These projections are national, by degree level from high school graduates through advanced university degrees. The only demographic breakdown is by gender.

Census Bureau. Recently the Census Bureau published a paper on educational attainment projections. This paper was motivated by a concern that future educational attainment levels in the U.S. could stagnate or even decline. Such a scenario was posited in light of leveling of educational attainment levels between 1975 and 1995, changing ethnic mix of the population, and high immigration levels.

Day, J. C., and Bauman, K.J. (May 2000.) "Have We Reached the Top? Educational Attainment Projections of the U.S. Population." Population Division Working Paper No. 43. Washington, DC: U.S. Bureau of the Census, Population Division.

This analysis by Census Bureau staff addresses concerns about stagnating or even decreasing levels of educational attainment in the U.S. population. Factors contributing to this concern include: flattening educational attainment among entering cohorts, and growth in ethnic groups and immigrants with traditionally lower levels of education than native populations.

Controlling for immigration, sex, race, ethnicity, age and questionnaire effects, the paper concludes that the United states should experience steady increase in the educational attainment levels of the population 25 and over.

What we have observed is that the production of college educated workers falls well short of meeting labor market needs for workers with these skill levels.

Introduction to . . . *. . . the human capital economy*

Educational Attainment and State Economic Welfare

The 50 states vary widely on important measures of economic welfare of their citizens.

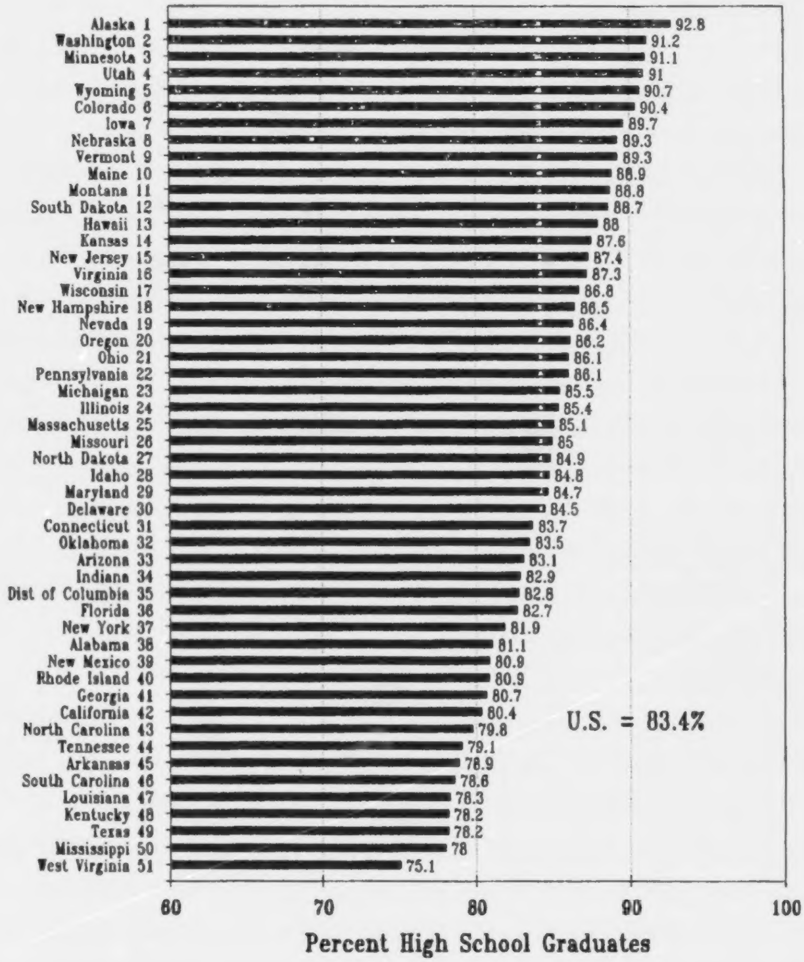
- State poverty rates in 1999 ranged from 20.5 percent in **New Mexico** to 7.2 percent in **Maryland**.
- State per capita personal income in 1999 ranged from $20,506 in **Mississippi** to $39,167 in **Connecticut**.

Similarly, the states vary widely in the educational attainment of their citizens.

- The proportion of state populations age 25 and over that are at least high school graduates ranges from 75.1 percent in **West Virginia** to 92.9 percent in **Alaska**.
- The proportion of state populations age 25 and over that have at least a bachelor's degree ranges from 17.3 percent in **Arkansas** to 42.1 percent in the **District of Columbia**.

These variations--between educational attainment and economic welfare--are closely and causally related. Just as more education leads to greater economic welfare for persons, families and households, so too does more education lead to greater economic welfare for cities, states and the country. Increasingly, economic welfare is determined for each and all of us by the amount of formal education we have earned.

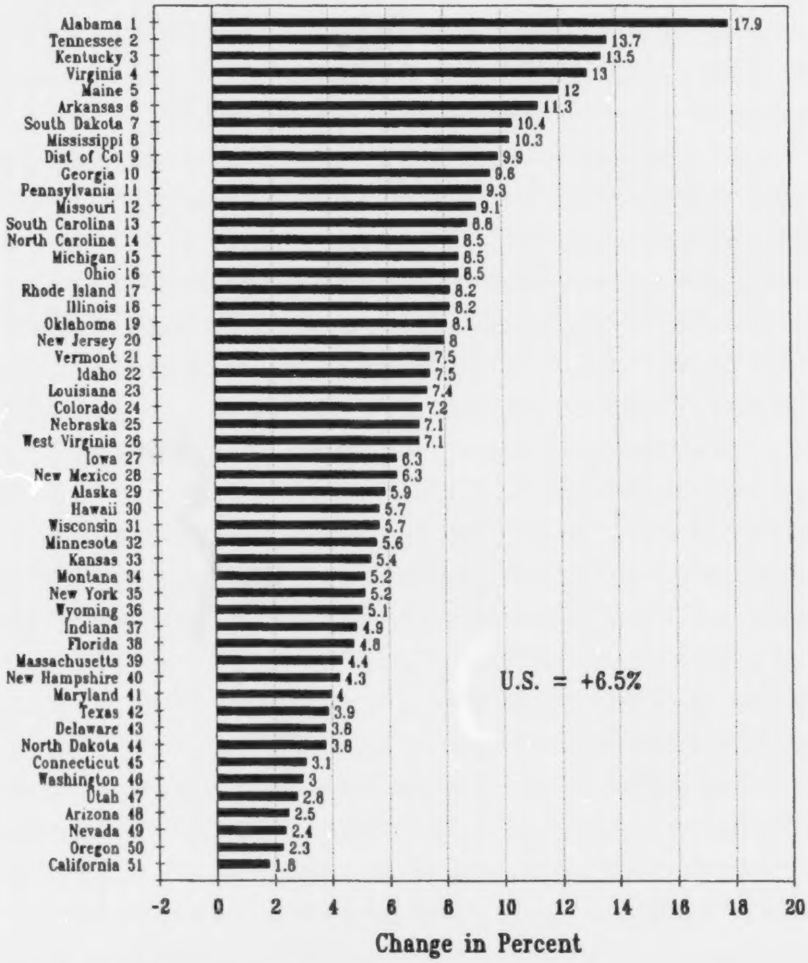
High School Graduates by State Among Those 25 and Over
1999



The relationship between educational attainment and economic welfare has been strengthening steadily since the early 1970s. The last three decades have seen the inauguration of the human capital economy in the United States. Increasingly, it is those with postsecondary education or training that are succeeding, while those with least education are failing. This relationship begins with the individuals, within whom education resides and is the fundamental unit of economic production. Then, these economic benefits from education accrue to the aggregations of individuals: in families and households, in neighborhoods and cities, in states, and increasingly, in the global world, in countries.

In this analysis we examine the relationships between two measures of educational attainment and two measures of economic welfare. The two measures of educational attainment are the proportion of each state's population age 25 and over that has completed at least high school, and the proportion of each state's population age 25 and over that has

Change in Population 25 and Over That Are High School Graduates by State, 1989 to 1999



completed at least a bachelor's degree from college. The two measures of economic welfare examined for each state are state poverty rates and state per capita personal income. These relationships are examined for 1999 with recently released data, and over the last decade to see how these relationships have evolved.

What our statistical analyses find are three key relationships:

- First, state poverty rates are largely determined by the proportion of each state's population age 25 and over that is at least a high school graduate.
- Second, state per capita personal income is largely determined by the proportion of each state's population age 25 and over that has at least a bachelor's degree from college.
- Over just the last decade of available data, these relationships have strengthened in the states.

The balance of this report describes the data used, the key statistical analyses and findings, and the relationships in detail. Finally, this report summarizes the two key state strategies for acquiring college-educated adults: growing each state's own talent compared to importing college talent educated in other states. States are categorized by their success at educating their own citizens and attracting college graduates educated in other states over the last decade.

The Data

The state data used in this analysis come from two federal sources: the Census Bureau and the Bureau of Economic Analysis, both parts of the Department of Commerce.

The Census Bureau produced the data on educational attainment by state, both high school graduates and college graduates. Data have been reported for 1989, 1991 and 1993 to 1999.

Newburger, E.C., and Curry, A. (August 2000.) *Educational Attainment in the United States, March 1999.* Current Population Reports P20-528. Washington, DC: U.S. Dept of Commerce, Census Bureau.

In particular we have used the data from Table 13 of the above report. The report and all accompanying tables are available from the Census Bureau's website at:

http://www.census.gov/population/www/socdemo/educ-attn.html

The Census Bureau also produces the data used in this analysis on state poverty rates. These data appear in annual reports on poverty, the most recent of which is:

Poverty in the United States: 1999. Current Population Reports P60-210. Washington, DC: U.S. Department of Commerce, Census Bureau.

This report may be downloaded from the Census Bureau's website at:
http://www.census.gov/hhes/www/povty99.html

Finally, the data on per capita personal income by state and year were recently revised and updated by the Bureau of Economic Analysis, and published in the June 2000 issue of the *Survey of Current Business.*

Brown, R.L., Albetski, K.A., Newman, J.L., Pilot, A.T., and Tran, D. "Comprehensive Revision of State Personal Income." *Survey of Current Business.* June 2000. Washington, DC: U.S. Department of Commerce, Bureau of Economic Analysis.

Finally, all of the data used in this analysis is contained in a large Excel spreadsheet available on our website at:
http://www.postsecondary.org
Go the spreadsheets button and look for it there.

Educational Attainment by State

States vary widely in the proportion of their population age 25 and over that is at least a high school graduate, and that has at least a bachelor's degree from college.

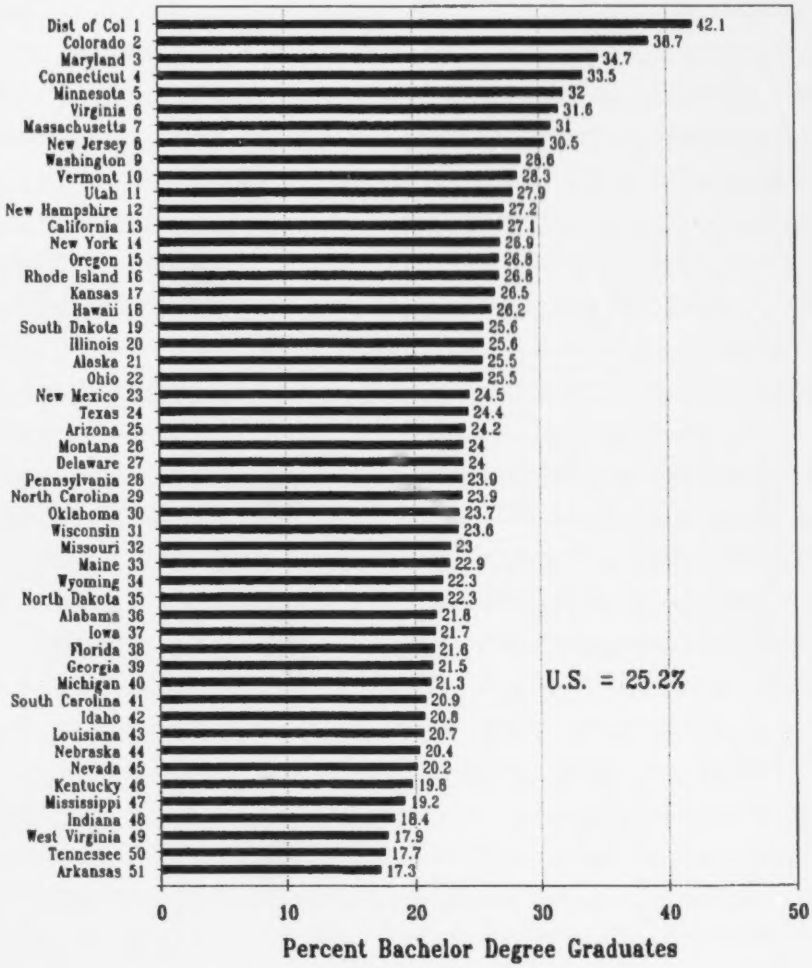
A priori we would expect these measures to be causally related to other measures of economic welfare of each state's population. Income for individuals and families is strongly related to educational attainment. So too are poverty rates, unemployment rates, voting rates, and just about every other measure of private welfare. When we aggregate individuals and families to communities, cities and states, we expect to see state economic welfare to be related to these measures of educational attainment as well.

High school graduates. The proportion of each state's population 25 and over that is at least a high school graduate (or its GED equivalent) is shown in the chart on page 9. For the 50 states plus DC, 83.4 percent of the population is at least a high school graduate.

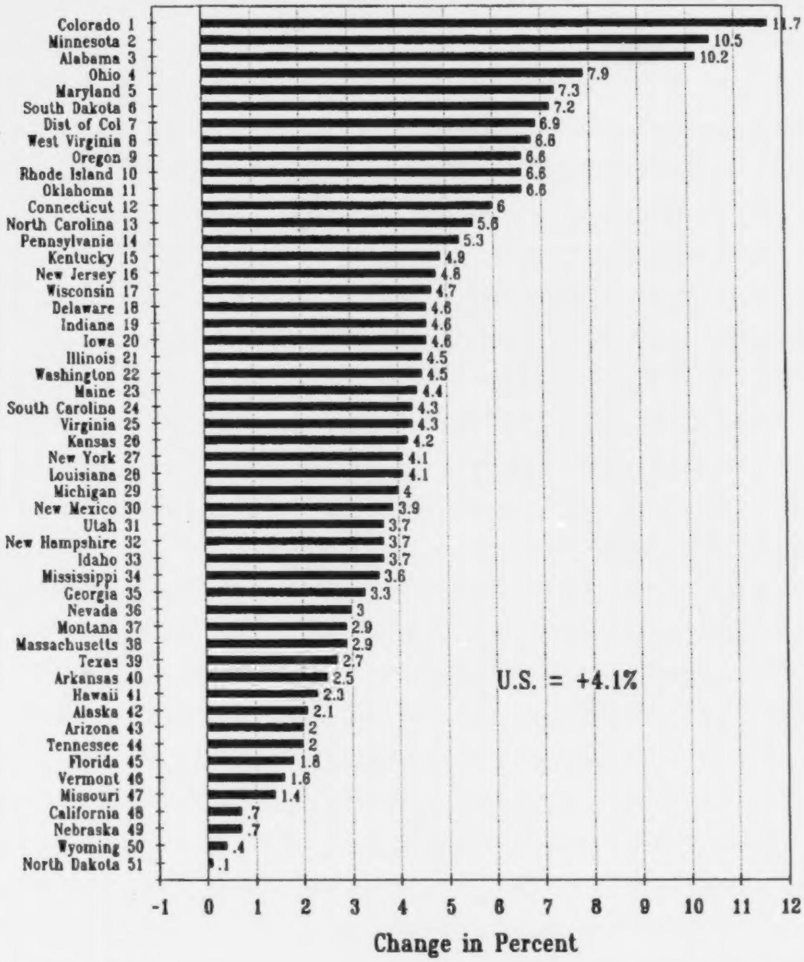
But across the states, the proportion varies widely. At the high end of the scale, states with more than 90 percent of their population 25 and over that are high school graduates in 1999 include: **Alaska** (92.8 percent), **Washington** (91.2 percent), **Minnesota** (91.1 percent), **Utah** (91.0 percent), **Wyoming** (90.7 percent) and **Colorado** (90.4 percent).

At the low end of the scale, states with less than 80 percent of their population 25 and over that are high school graduates include: **West Virginia** (75.1 percent), **Mississippi** (78.0 percent), **Texas and Kentucky** (78.2 percent), **Louisiana** (78.3 percent), **South Carolina** (78.6 percent), **Arkansas** (78.9 percent), **Tennessee** (79.1 percent) and **North**

4-Year College Graduates by State Among Those 25 and Over
1999



Change in Population 25 and Over with Bachelor's Degree by State, 1989 to 1999



Carolina (79.8 percent).

Between 1989 and 1999, the proportion of the U.S. population 25 years and over that was at least a high school graduate increased by 6.5 percentage points, from 76.9 to 83.4 percent. Growth occurred in all states, but some much more than in others. Once again, across the 50 states plus DC there were great differences.

The greatest growth occurred in **Alabama**, where the increase was 17.9 percentage points between 1989 and 1999. Other states with gains of more than ten percent were: **Tennessee** (+13.7 percent), **Kentucky** (+13.5 percent), **Virginia** (+13.0 percent), **Maine** (+12.0 percent), **Arkansas** (+11.3 percent), **South Dakota** (+10.4 percent) and **Mississippi** (+10.3 percent).

In other states, mainly in the West, there was almost no growth at all. The states with the smallest increases in the proportion of those 25 and over who were at least high school graduates were: **California** (+1.8%), **Oregon** (+2.3 percent), **Nevada** (+2.4 percent), **Arizona** (+2.5 percent), **Utah** (+2.8 percent) and **Washington** (+3.0 percent).

Note that many of these states are immigrant-destination states and new populations of adults might be holding down these high school graduate shares.

Bachelor's degrees. In 1999 25.2 percent of the population 25 and over in the 50 states plus DC had at least a bachelor's degree from college. Again, the states varied widely.

At the high end of the scale, in the **District of Columbia** 42.1 percent of those 25 and over had at least a bachelor's degree. Other states where more than 30 percent had at least a bachelor's degree included: **Colorado** (38.7 percent), **Maryland** (34.7 percent), **Connecticut** (33.5 percent), **Minnesota** (32.0 percent), **Virginia** (31.6 percent), **Massachusetts** (31.0 percent) and **New Jersey** (30.5 percent).

At the low end of the scale stood **Arkansas** with just 17.3 percent of its population 25 and over with at least a bachelor's degree. Other states with less than 20 percent were: **Tennessee** (17.7 percent), **West Virginia** (17.9 percent), **Indiana** (18.4 percent), **Mississippi** (19.2 percent) and **Kentucky** (19.8 percent).

Over the last ten years, between 1989 and 1999, the proportion of the U.S. population age 25 and over with at least a bachelor's degree has increased by 4.1 percent. The states with the largest increases were: **Colorado** (+11.7 percent), **Minnesota** (+10.5 percent) and **Alabama** (+10.2 percent).

While all states experienced some increase, the smallest gains were recorded in **North Dakota** (+0.1 percent), **Wyoming** (+0.4 percent), **Nebraska** and **California** (+0.7

percent).

State Poverty Rates

In 1999 the poverty rate was 12.3 percent. Across the 50 states it ranged from a low of 7.2 percent in Maryland to a high of 20.5 percent in New Mexico.

We have examined the relationships between educational attainment and measures of state economic welfare. Specifically, here we examine the relationship between high school graduate attainment and state poverty rates, and bachelor's degree attainment and state poverty rates.

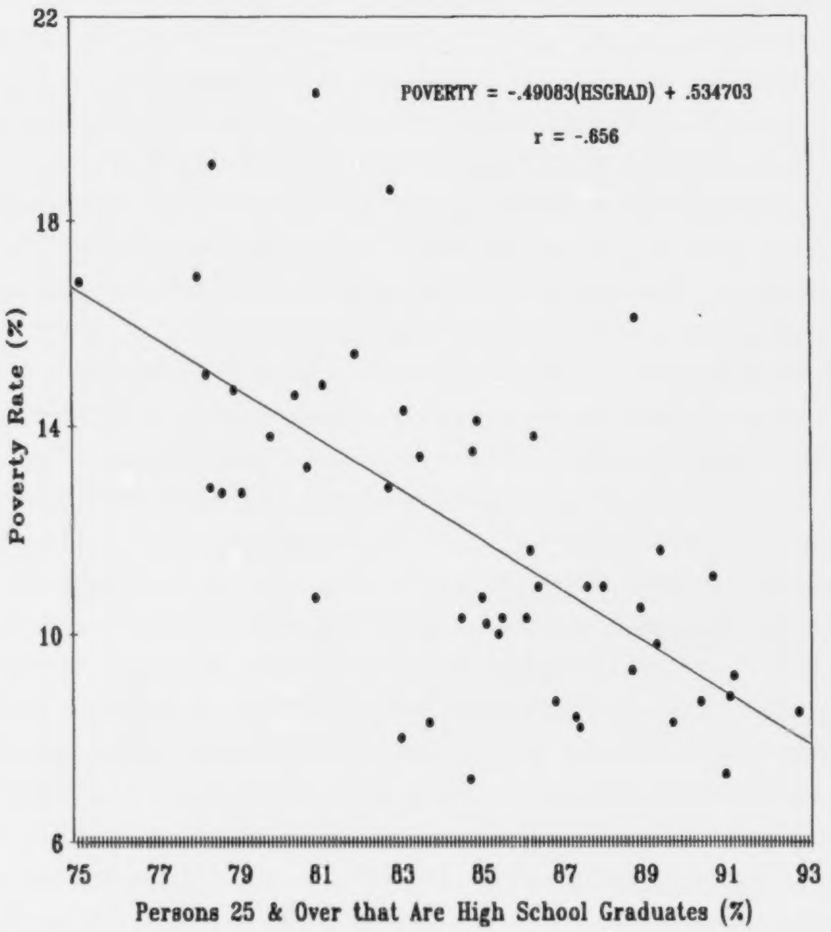
Our analysis consists of simple correlation and regression analysis across the 50 states plus DC with 1999 data, and correlation analysis for each of the years of available data: 1991 and 1993 to 1999.

The results of the correlation analyses are shown in the following table:

	Correlation of Poverty Rate with:	
Year	HS Grad Rate	Bachelor's Rate
1991	-.521	-.294
1993	-.726	-.277
1994	-.685	-.273
1995	-.657	-.284
1996	-.686	-.356
1997	-.618	-.252
1998	-.643	-.258
1999	-.656	-.270

These results show a consistent pattern of relationships. Specifically, the poverty rate is more highly correlated (negatively) with the high school graduate rate than it is with the bachelor's degree attainment rate. It appears from this that high school graduation is more important than college education in explaining the variation in poverty rates across the 50 states.

State Poverty Rates by Population 25 and Over That Are at Least High School Graduates 1999



The results of the regression analysis are shown in the scatter plot on this page. Here the regression line for this scatter plot is:

poverty = -.49083(hsgrad) + .534703

Under this formula for 1999, each one percent gain in the proportion of a state's population age 25 and over that is at least a high school graduate decreases the state's poverty rate by about 0.5 percent.

State Per Capita Personal Income

We have also examined the relationships between the proportion of each state's population age 25 and over that has at least a bachelor's degree from college with our two measures of economic welfare of the state's population. The analysis follows the previous pattern.

The results of the correlation analysis are shown in the following table for the years of available data:

	Correlation of Per Capita Personal Income with:	
Year	HS Grad Rate	Bachelor's Rate
1989	.359	.701
1991	.360	.712
1993	.278	.747
1994	.339	.671
1995	.334	.637
1996	.306	.800
1997	.246	.756
1998	.325	.756
1999	.270	.735

These results too are consistent. The correlations are positive, and in this case the greater correlation is with the proportion of each state's population 25 and over that has at least a bachelor's degree from college. That is, unlike the relationship between high school graduation and poverty rates shown in the previous analysis, here the relationship is between bachelor's degrees and per capita personal income.

The remedy available to states to alleviate poverty is to increase high school graduation. The state remedy to achieve affluence is to increase the proportion of those 25 and over with at least a bachelor's degree from college.

Becoming Affluent Among States

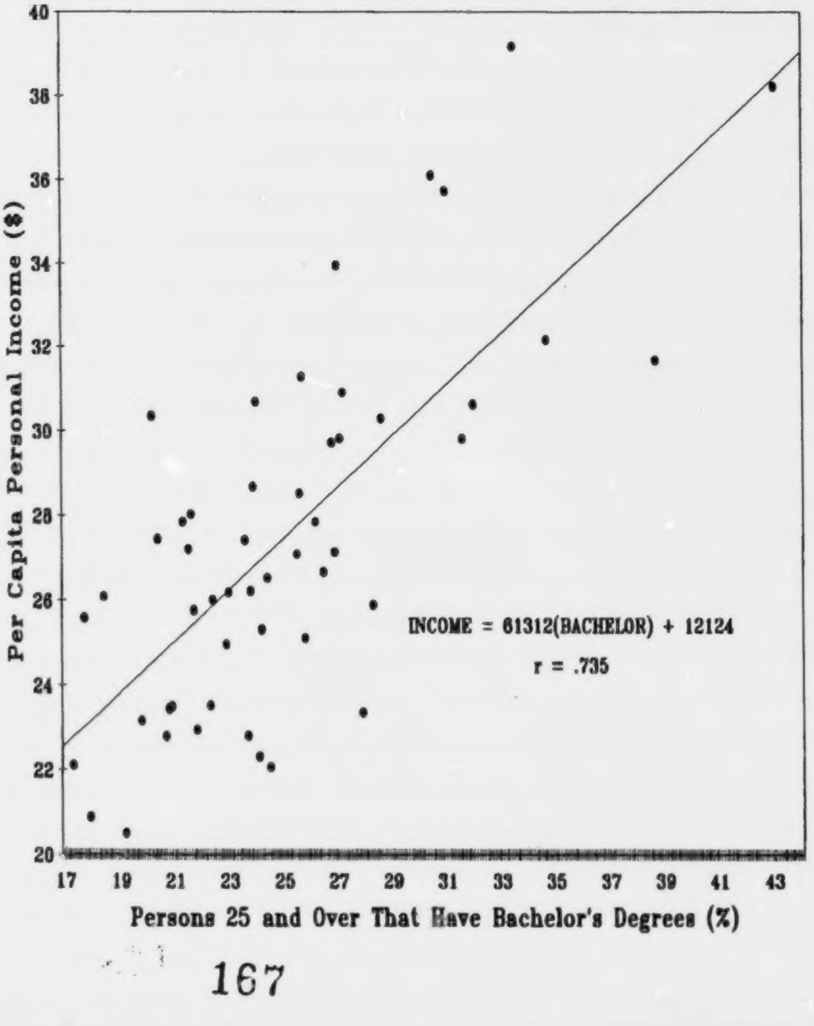
States faced with unsatisfactorily high poverty rates, or unsatisfactorily low per capita personal income have only two remedies available to them. States may either: a) grow their own human capital, or b) import human capital produced elsewhere.

Census Bureau studies of migration in the U.S. have consistently found that about 15 percent of the population changes residences each year. The only difference in migration across levels of educational attainment is how far people move. The less well educated tend to make short moves, often within the same county. The best educated are quite likely to move from one state to another when they decide to change residences. Thus, for our purposes here we will examine the migration of college-educated adults between states.

Our model is a basic stock-and-flow model. For each state we know how many college graduates there are at two different points in time. We also know how many bachelor's degrees are produced within the state between these two points in time.

- If the difference between the beginning and ending stock of bachelor's degrees is less than the number produced during this period, then that state is exporting more college graduates than it is importing.
- If the difference between the beginning and ending stock of bachelor's degrees is greater than the number produced during this period, then that state is importing

State Per Capita Personal Income by Population
Age 25 Years and Over with Bachelor's Degrees
1999



State Acquisition of College Graduates

		Home Grown College Talent (Chance for College by age 19 by state, 1998)		
		Trying Hard (top 15)	**Coasting** (middle 20)	**Poor Effort** (bottom 15)
Net Migration of College Graduates (1989 to 1999)	**Attractive** (top 15)	*Best*	Minnesota, Maryland, Ohio, North Carolina, Colorado, New Mexico, Idaho, Washington	Alabama, Oregon, Texas, Georgia, Arizona, Nevada, Alaska
	Plain (middle 20)	New Jersey, South Dakota, Illinois, Connecticut, Kansas, Wisconsin	Maine, Delaware, Michigan, Virginia, West Virginia, Hawaii, Kentucky	Oklahoma, Louisiana, California, Utah, Mississippi, South Carolina, Florida
	Unattractive (bottom 15)	North Dakota, Massachusetts, Iowa, Nebraska, Rhode Island, Pennsylvania, Montana, New Hampshire New York	Indiana, Wyoming, Vermont, Arkansas, Missouri	Tennessee *Worst*

more college graduates than it is exporting.

The major limitation to this model is the absence of data on bachelor's degree loss due to mortality. Because we cannot do anything about these missing data, we ignore it. The reader is warned.

For this analysis we choose the end-points of our available time-series: March of 1989 and 1999. The Census Bureau has provided us with data from which the number of people 25 and over with a bachelor's degree has been calculated for each state plus DC.

The additions to the stock of bachelor degree holders in each state between March of 1989 and March of 1999 has been collected through IPEDS and reported by the National Center for Education Statistics in *Ed Tabs* and the *Digest*.

For example, **Alabama** had 292,734 bachelor degree holders age 25 and over in March of 1989. By March of 1999 **Alabama** had 610,182 people with bachelor's degrees, or an increase of 317,398 over this ten year period. Between 1988-89 and 1997-98p there were 194,556 bachelor's degrees produced by **Alabama** colleges and universities. The difference between the increase in stock of 317,398 and the number of bachelor's degrees produced of 194,556 is the number of net migrants with bachelor's degrees. In this case 122,842 more bachelor's degree holders moved to Alabama than left the state to live elsewhere.

Over the ten years between 1989 and 1999, 23 states imported more college graduates than they exported. The largest net importers were **Colorado** (+259,777), **Texas** (+207,700), **Ohio** (+183,603), **Washington** (+153,303), Maryland (+179,540), and **Minnesota** (+141,055).

Twenty-eight states exported more college graduates than they imported. The largest net exports of college graduates during this period were: **New York** (-352,866), **Massachusetts** (-248,538), **Pennsylvania** (-236,696), **Missouri** (-157,149), Michigan (-121,324) and **California** (-100,440).

For a state-by state, year-by-year analysis see the Stock and Flow spreadsheet posted on our website under the Spreadsheets button.

Acquiring College Graduates

States have only two ways to acquire college graduates to grow their economies: grow their own college graduates from their resident populations, or attract college graduates produced in other places. Fortunately, we have studied both processes and have ranked states by their respective efforts. Thus we can cross-classify states according to their efforts and attractiveness.

The above matrix classifies the 50 states according to their success at educating their own citizens (chance for college by age 19 by state), and their attractiveness or unattractiveness for college graduates as a place to live and work. Significantly no state is both trying hard to educate its own citizens *and* is relatively attractive to college graduates educated elsewhere. At best, the states that are relatively attractive to college graduates educated elsewhere are coasting when it comes to producing home-grown college-educated adults. These states are: **Minnesota, Maryland, Ohio, North Carolina, Colorado, New Mexico, Idaho and Washington.**

Or, at best, the other states are trying hard to educate their own young people, but do not offer particularly attractive places to live. These include: **New Jersey, South Dakota, Illinois, Connecticut, Kansas** and **Wisconsin.**

One state is both making poor effort to educate its own young people and is exporting more college graduates than it is producing: **Tennessee.** This was a close call since the state almost made it into the list of states that were not particularly attractive places for college graduates to live. But it missed this by one ranking, and thus holds down last place among the states in acquiring college educated workers for its adult work force.

Summary

This analysis has illustrated key relationships between educational attainment and state economic welfare.

- State poverty rates are largely influenced by the proportion of adults that are at least high school graduates.
- State per capita is largely determined by the proportion of adults with at least a bachelor's degree from college.

Those concerned about and responsible for state economic welfare cannot ignore these findings.

States have two ways to improve state economic welfare.

- States can educate their own state residents, or
- States can seek to attract college graduates educated elsewhere to come and live (and work) in their own states.

No state does both of these well. And actually no state does a poor job at both. Rather, these data suggest that states that are relatively attractive to college graduates educated elsewhere do not try very hard to educate their own citizens. States that are not particularly attractive to college graduates educated elsewhere try harder and are more successful at educating their own citizens. Why this is so we do not know--we are left to ponder.

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The Mortenson Research Seminar on Public Policy Analysis of Opportunity for Postsecondary Education

Number 101 www.postsecondary.org **November 2000**

Private Economic Benefit/Cost Ratios of a College Investment for Men and Women 1967 to 1999

A college education is an investment. Investments have benefits and costs. An investment is something into which one puts money with the expectation of a return or profit on the investment.

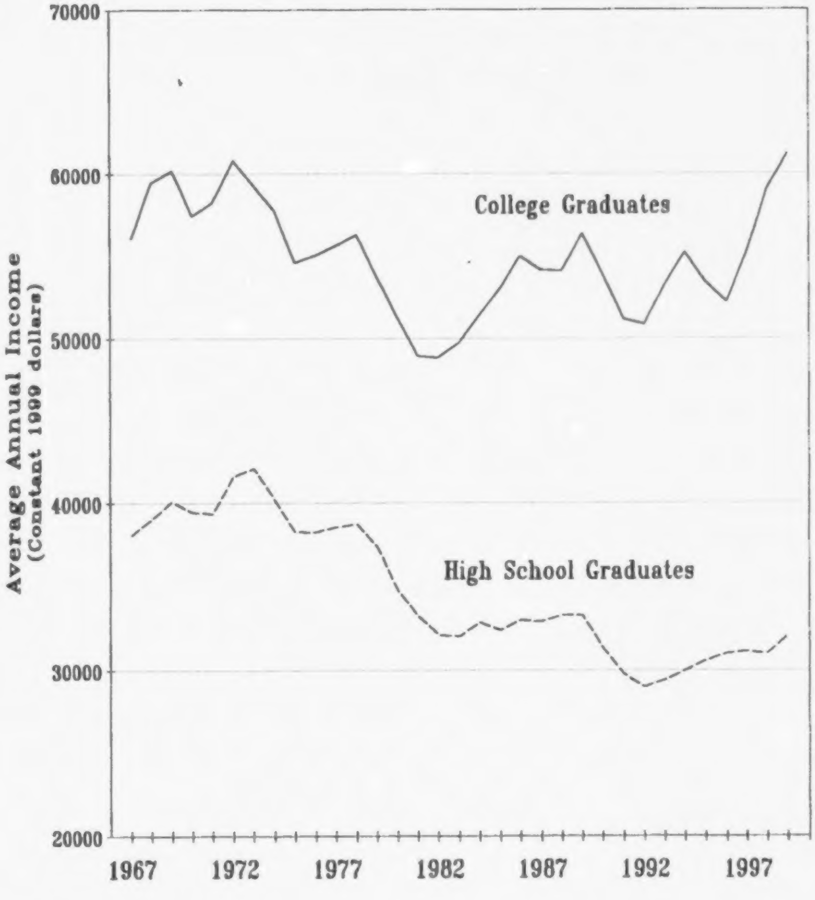
The annual costs of college are immediately apparent to prospective students and their parents. These costs often appear formidable. For the current 2000-01 academic year, The College Board reports national average costs of attendance as:

• Public 2-year, commuter:	$7,024
• Public 4-year, commuter:	$9,229
• Public 4-year, resident:	$11,338
• Private 4-year, commuter:	$21,704
• Private 4-year, resident:	$24,946

These costs usually exceed families' ability to pay from their own income and savings. Ability to pay is measured by the Federal Methodology used to determine financial need for need-based student financial aid programs.

The benefits from a college education are usually less apparent to prospective students and their parents than are college attendance costs. These benefits are lifelong and take many forms. But mainly they begin after the student graduates from college, and thus are not immediately apparent to the student.

Average Annual Income for Male High School and College Graduates Age 25 and Over 1967 to 1999



Source: Census Bureau

Foremost among these benefits from a college education is the increased income that accrues to the college-educated compared to the incomes of those with only a high school education. For examples, in 1999:

- For males, the lifetime income of a college graduate will be about $1,160,000 more than that of a high school graduate.

- For females, the lifetime income of a college graduate will be about $600,000 more than that of a high school graduate.
- For families, the lifetime income of families headed by persons with a bachelor's degree will be about $1,600,000 more than the incomes of families headed by persons with a high school diploma.

In this analysis we examine the income/cost ratios of a college investment decision for individuals. We do this for men and women separately, because men and women have very different incomes at similar levels of educational attainment. Because college attendance costs are nearly identical for men and women, the differences in the benefit/cost ratios are attributable purely to differences in the incomes between men and women at similar levels of educational attainment. We perform these calculations for each year from 1967 through 1999.

The results of this analysis produce these quite astounding results (for 1999):

- For males graduating from a public 4-year institution in four years with a bachelor's degree, each $1.00 spent on institutional charges produced $34.85 in increased lifetime income.
- For females graduating from a public 4-year college or university with a bachelor's degree, each $1.00 spent on institutional charges returns $18.06 in increased lifetime income.
- For males graduating from private 4-year institutions, each $1.00 spent on institutional charges over 4 years yields $13.83 in increased lifetime income.
- For females graduating from private 4-year colleges or universities, each $1.00 spent on institutional charges over 4 years produced $7.17 in increased lifetime income.

Moreover, between 1967 and 1999, these benefit/cost ratios have held up quite well. While the costs of college attendance have grown sharply in real terms since about 1980, so too has the income differential between those with a high school education and those with a college education.

The most obvious conclusions from these findings are:

- A college education is an extraordinarily profitable investment.
- For those who say they cannot afford college, the appropriate reply is that they cannot afford not to go to college.
- About the only thing more expensive than attending college is not attending college.
- Most college educations are at least as good an investment in 1999 as they were three decades ago.

In this analysis we examine the benefit data--increased income--from the Census Bureau, along side the college cost data collected and reported by the National Center for Education Statistics. This is a very narrow and highly simplified exploration of the investment value of a college education. But its simplicity is a virtue in that it so clearly reveals the huge private returns to an expenditure/investment in college, and that this remarkable economic value has changed little between 1967 and 1999.

Complications

A more refined analysis of the economic value of a college investment decision for individuals would embellish this simple calculation with at least the following factors.

Addition of benefits. There is more to a college education than the long-term economic benefits used here. Beyond money, people with more education live longer and happier lives than

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Mission Statement

This research letter is founded on two fundamental beliefs. First, sound public social policy requires accurate, current, independent, and focused information on the human condition. Second, education is essential to the development of human potential and resources for both private and public benefit. Therefore, the purpose of this research letter is to inform those who formulate, fund, and administer public policy and programs about the condition of and influences that affect postsecondary education opportunity for all Americans.

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those with less formal education.

In addition there are short term benefits to college enrollment that are more properly classified under consumption than investment. The lifestyles available on most college campuses are attractive and not available elsewhere.

Addition to costs. There are more costs than institutional charges, which include only tuition, fees, room and board. Other costs while attending college include books and supplies, transportation, personal and medical care. There are also opportunity costs of college attendance.

Subtraction to costs. Not all students pay these costs. Financial aid, particularly grants and scholarships, reduce the costs of college attendance for those who receive such aid.

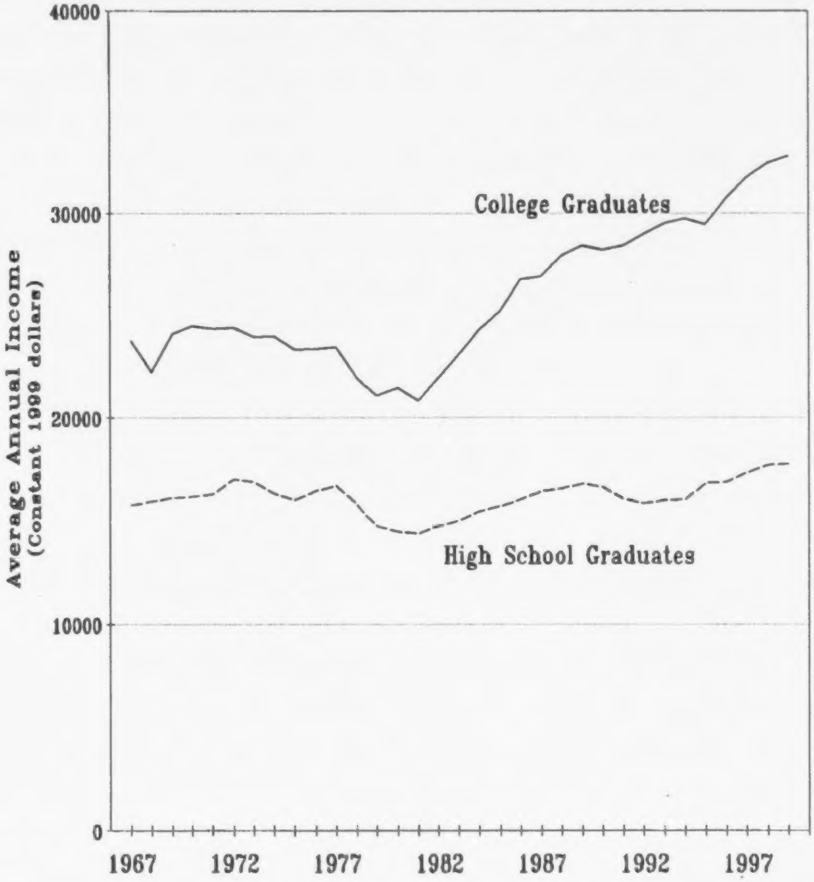
Present value. Present and future values differ by the time value of money. Future benefits and costs can be discounted to present value by the selection of an appropriate discount rate.

Those interested in these refinements to our simplified benefit/cost calculations here are invited to review Chapter 4: Higher Education as Private Investment, in *The Economic Value of Higher Education* by Larry Leslie and Paul Brinkman (American Council on Education, 1988).

The Data

In this analysis the *benefits* of a college education investment are the increased incomes of college graduates compared to the incomes of high school graduates. The *costs* of a college education investment are the institutional charges paid to attend college.

Average Annual Income for Female
High School and College Graduates Age 25 and Over
1967 to 1999



Source: Census Bureau

The data on income by educational attainment are collected by the Census Bureau in the March Current Population Survey for the prior calendar year. These data are published in the P60 series of Current Population Reports usually under the title *Money Income in the United States*. Recent reports in this series are available for downloading from the Census Bureau's website at:

http://www.census.gov/hhes/www/income.html

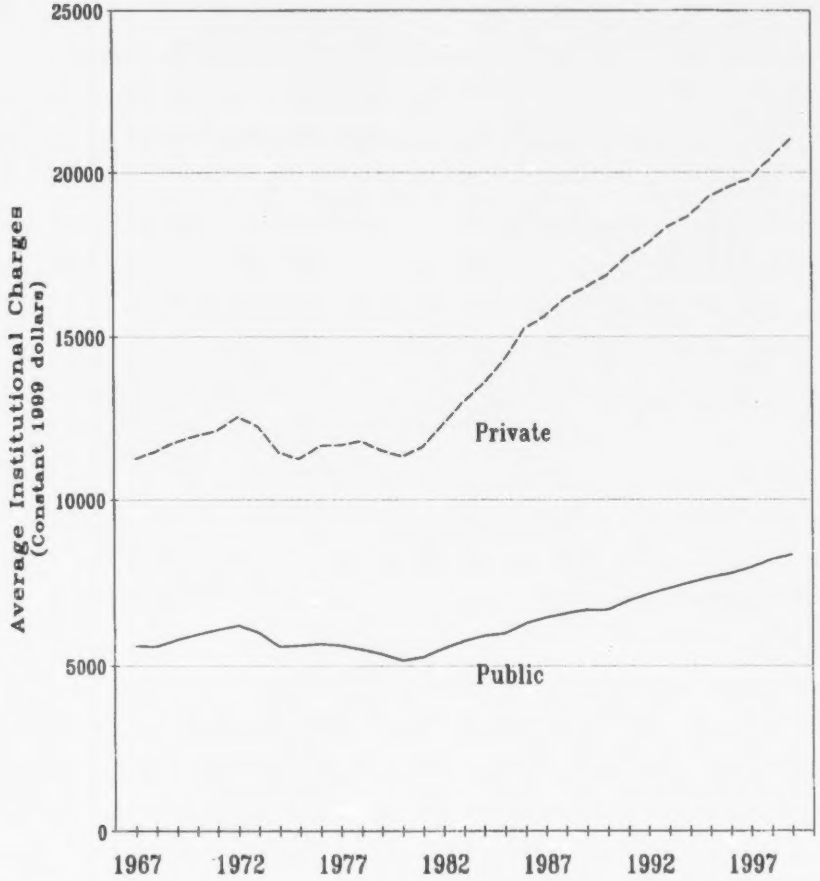
In addition, there are valuable time-series tables of historical data on income by education from this page on the Census Bureau's website.

The data on institutional charges used in this analysis come primarily from the *Digest of Education Statistics* published by the National Center for Education Statistics. In the 1999 edition of the *Digest*, see Table 317 for the institutional charges data used in this analysis.

More recent data not published in the *Digest* was derived from The College Board's annual report titled *Trends in College Pricing*. Copies of this report may be downloaded from The College Board's website at:

http://collegeboard.org/press/cost00

Average Annual Institutional Charges
at Public and Private 4-Year Institutions
1967 to 1999



Source: National Center for Education Statistics

Benefits

According to the Census Bureau, in 1999 average annual income for a male age 25 and over with a bachelor's degree was $61,198, compared to $32,127 for a male with a high school diploma. The college graduate's income was $29,071 more than that of the high school graduate. Assuming a working lifetime of 40 years, the college graduate will receive in income about $1,162,840 more than will the high school graduate.

Actually, the income differential between high school and college graduated males has increased since 1967. In constant dollars, the male bachelor's degree income has fluctuated between about $48,000 and $61,000 during the last three decades. While the 1999 figure is the highest on record at $61,198, it is just barely above the 1969 figure of $60,185. The constant dollar average annual incomes of males with high school diplomas and bachelor's degrees from college are shown in the chart on page 1 of this issue of OPPORTUNITY.

What has been most striking is the decline in the real income of high school educated males since the early 1970s. From the peak in 1973 at $42,093, the 1999 income of $32,127 represents a loss of about 24 percent.

It is this growing gap between the incomes of college and high school educated males that continues to make a college education such an attractive choice. It is not that college graduate incomes are so much better, but rather that the incomes of high school educated males are so much worse than they have been in recent decades.

A similar picture emerges for high school and college educated women. As shown in the chart on page 3, incomes for females age 25 and over with a high school diploma averaged $17,736 in 1999, compared to $32,803 for women with bachelor's degrees. This means that college graduates had incomes that averaged $15,067 more than those with a high school diploma. Over a 40 year working lifetime, this converts to $602,680.

While the incomes of high school educated women are higher than they have ever been, they are even farther behind those of college educated women than they have ever been. Between 1967 and 1999, real incomes of high school educated women have increased by 13 percent, while those of college educated women have increased by 38 percent.

Costs

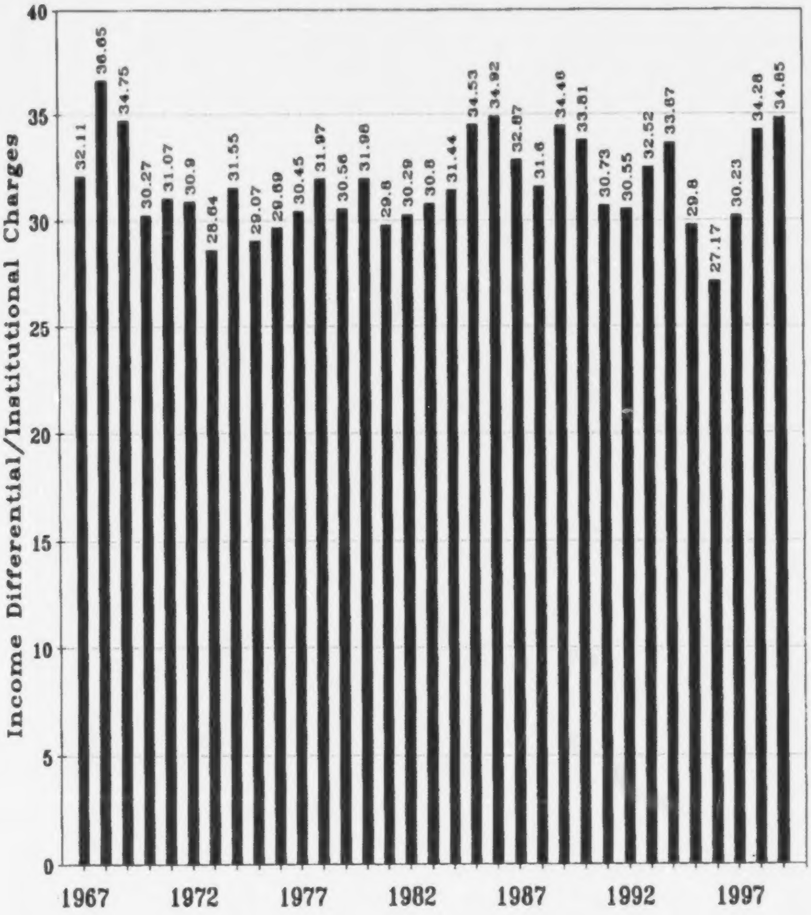
College and university charges include tuition, fees, room and board. They are the same for both men and women, despite differences in post-college income prospects.

In 1999 public 4-year colleges and universities charged an average of $8,341 for these tuition, fees, room and board. Thus, to get a bachelor's degree in 4 years, the cost of a college education is $33,364.

Similarly, in 1999 national average institutional charges at private 4-year colleges and universities were $21,020. Over four years to get a bachelor's degree, this cumulates to $84,080.

In constant dollars, institutional charges in both public and private institutions remained nearly constant between 1967 and 1980. These data are shown in the chart on page 4. However, after 1980 real institutional charges began steady and substantial growth. Between 1980 and 1999, real institutional charges in public institutions increased by 62 percent. In private institutions they increased by 86 percent.

Benefit/Cost Ratio for Males
at Public 4-Year Institutions
1967 to 1999



Benefit/Cost Ratios

Our evaluation of a college education as an investment is a simple ratio of benefits divided by costs. The benefits are increased lifetime income. The costs are four years of institutional charges. The resulting ratio is the dollar gained over the dollar spent.

Males, public 4-year institutions. In 1999 the benefit/cost ratio for a male receiving a bachelor's degree from an average cost public 4-year college or university was 34.85. Expressed another way, for each dollar spent on tuition, fees, room and board over four years, the return was $34.85 in increased lifetime income. A dollar spent produced a return of $34.85.

As shown in the chart on this page, the benefit/cost ratio has fluctuated within a fairly narrow range between 1967 and 1999. The low was $27.17 in 1996, and the high was $36.65 in 1968.

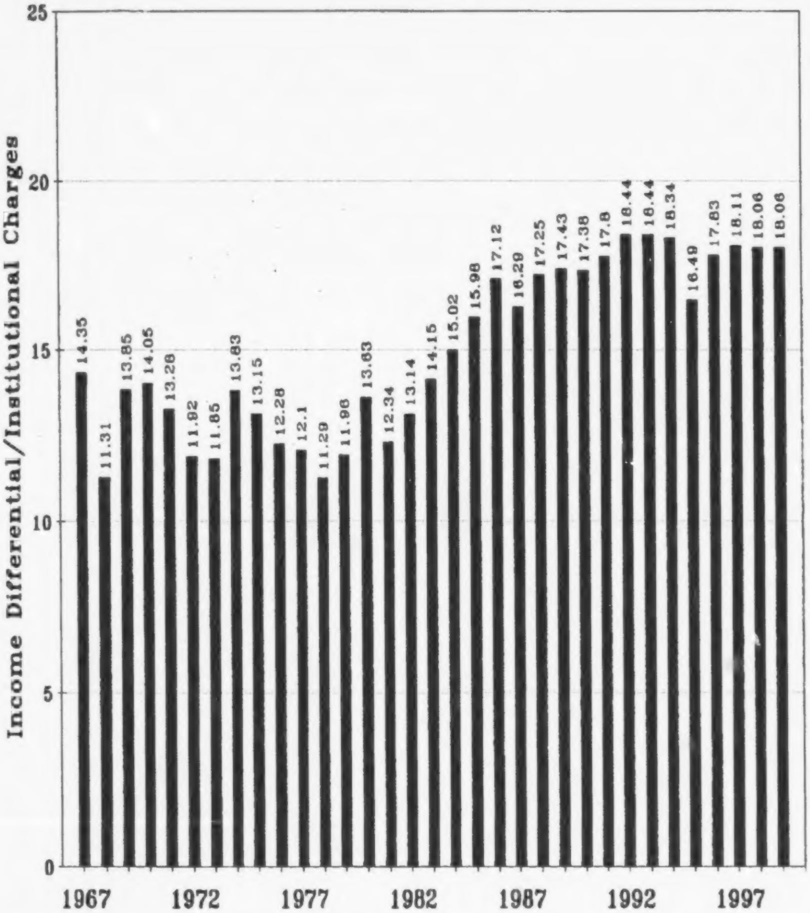
There does not appear to be much of a trend to these data. It's about flat. This means that the private investment value of a college education for a male graduating from a public college or university has remained about constant over the last three decades. Certainly the real cost of a college education has increased sharply since 1980. But so too has the income differential between a high school and a college graduate. In fact, the flatness of this trend indicates that as real institutional charges have increased over the last twenty years, so too has the income differential--and at a nearly identical rate.

What this constant benefit/cost ratio means is that the economic value of a college education today is just about the same as what it was one or two or three decades ago for males graduating from a public 4-year institution.

Females, public 4-year institutions. The chart on page 6 shows the benefit/cost ratios for females graduating from average cost public 4 year colleges or universities between 1967 and 1999. In 1999, each dollar spent on institutional charges over four years at a public institution produced $18.06 of increased lifetime income.

The same chart shows how the relationship between benefits and costs

Benefit/Cost Ratio for Females
at Public 4-Year Institutions
1967 to 1999



has changed over time. Between 1967 and the early 1980s, the economic value of a public college education for women hovered around $12 to $13 per dollar spent on institutional charges. Then between the early 1980s and the early 1990s, the return jumped to about $18. Since the early 1990s the value had held fairly steady at close to $18.00.

Males, private 4-year institutions. The first chart on page 7 shows the return for males on a private college education investment between 1967 and 1999. In 1999 a male with a bachelor's degree from an average cost private 4-year college or university could expect $13.83 in increased lifetime income for each dollar he spent on institutional charges over four years.

Over the last three decades, this ratio has trended downward, from a high of $17.83 in 1968 to a low of $10.81 in 1996. The 1998 and 1999 ratios are close to those of the early 1980s, however. The slight decline is far less important than the substantial positive return on investment, however.

Females, private 4-year institutions. The second chart on page 7 shows the return to females of a private college education. In 1999 a female with a bachelor's degree from an average cost private 4-year college or university could expect a return of $7.17 for each dollar spent on institutional charges over a 40 year working lifetime.

This ratio has increased somewhat over the last two decades. This means that income differential between a bachelor's degree and a high school diploma has increased somewhat faster than have private institutional charges, particularly since the late 1970s.

Summary

This simple analysis of the benefits and costs of a higher education investment decision has sought to bring together the apparent and formidable costs of a college education with the more obscure and distant economic benefits that result from that investment decision. The results are clear and compelling.

The institutional charges to get a college education are what students, and especially their parents, see. They are very large, like the cost of a house. And especially for parents with several children who have spent huge sums to raise their children, usually in a tuition free K-12 education system, the prospect of $34,000 for a public college degree, or worse yet $84,000 for a private college degree must be staggering.

Moreover, for the last 20 years these institutional charges have grown faster than inflation, family income and grant assistance. We find in amazement that so many families (correctly) decide to plunge ahead with college not knowing what will happen during or after college.

Their faith, however, is justified. The economic value of a college education is very large and still growing. A male with a bachelor's degree averages $29,071 more in annual income than does the male with a high school diploma. The lifetime difference is nearly $1.2 million. The female will earn $15,067 more, or $600 thousand over a 40 year working lifetime.

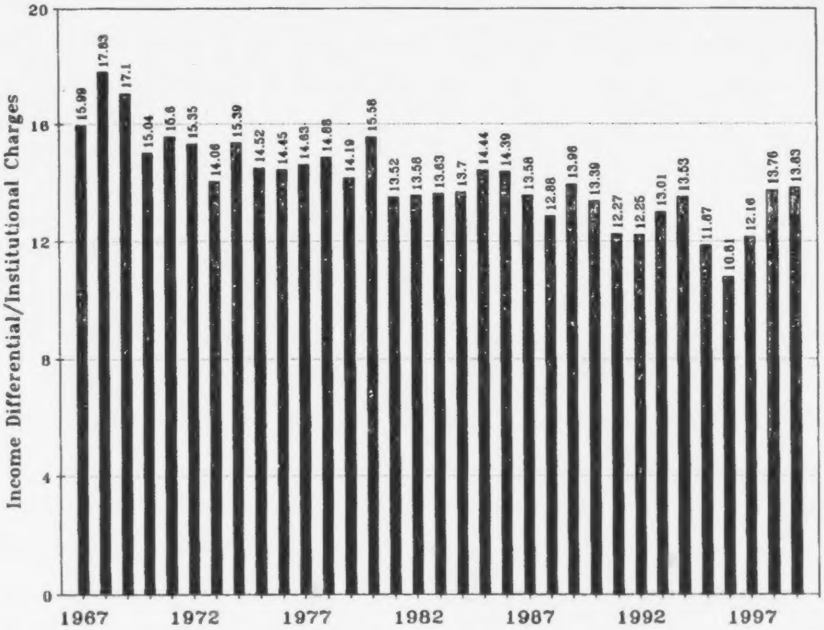
The high school graduate will not starve, but most of what he receives in income will be spent on meeting basic necessities of living over which he has very little control. All of this difference in income between the high school and college graduate is discretionary income available for choices that enrich life in this time and place of material abundance.

Of course there is much more to a college education than increased income provides.

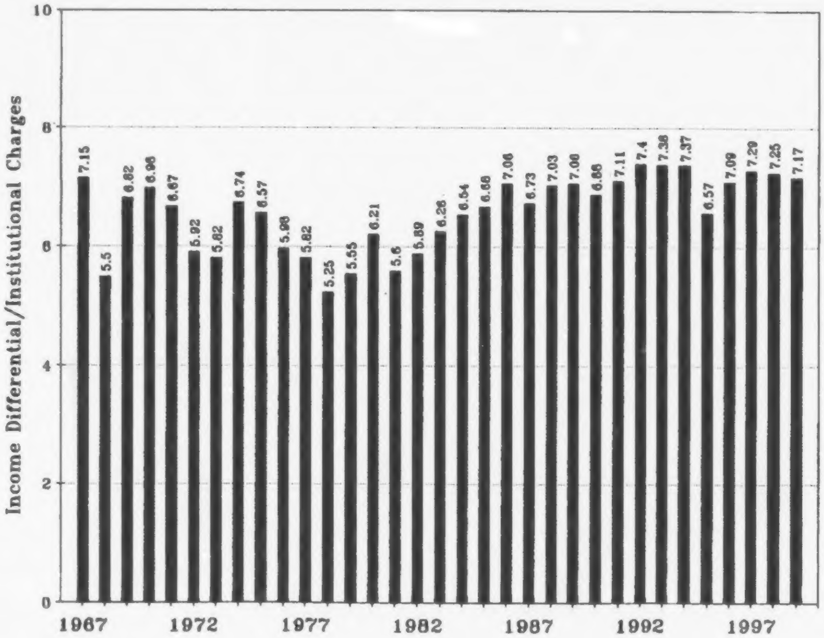
Generally, more education leads to greater economic stability and security, more prestigious employment, better access to health care, less dependency on government assistance, longer lifespans, better dietary and health practices, healthier children, greater use of seat belts, more continuing education, greater internet access, greater attendance at live performances, greater participation in leisure and artistic activities, more book purchases, better academic performance of children, higher voting rates, greater knowledge of government, greater community service, more volunteer work, greater tolerance of unconventional literature, greater community leadership, and less criminal activity and incarceration.

These non-financial benefits reflect choices available to and made by better educated adults. Presumably they reflect a more fully engaged and lived life. These benefits accrue to the families in which educated people live, their communities and cities, their states, and ultimately to the entire nation.

Benefit/Cost Ratio for Males
at Private 4-Year Institutions
1967 to 1999



Benefit/Cost Ratio for Females
at Private 4-Year Institutions
1967 to 1999



Males - Benefit/Cost Ratios

	Mean Income				Public 4-Year Cost		Income	Private 4-Year Cost		Income
	Bachelor's Degree	HS Graduate	Difference	Lifetime Difference	Institutional Charges	Degree Cost	to Cost Ratio	Institutional Charges	Degree Cost	to Cost Ratio
Year	A	B	C=A-B	D=C*40	E	F=E*4	G=D/F	H	I=H*4	J=E/J
2000					$8,737.00	$34,948.00		$22,204.00	$88,816.00	
1999	$61,198.00	$32,127.00	$29,071.00	$1,162,840.00	$8,341.00	$33,364.00	$34.85	$21,020.00	$84,080.00	$13.83
1998	$57,801.00	$30,318.00	$27,483.00	$1,099,320.00	$8,018.00	$32,072.00	$34.28	$19,970.00	$79,880.00	$13.76
1997	$53,152.00	$29,958.00	$23,194.00	$927,760.00	$7,673.00	$30,692.00	$30.23	$19,070.00	$76,280.00	$12.16
1996	$49,147.00	$29,218.00	$19,929.00	$797,160.00	$7,334.00	$29,336.00	$27.17	$18,442.00	$73,768.00	$10.81
1995	$48,856.00	$27,952.00	$20,904.00	$836,160.00	$7,014.00	$28,056.00	$29.80	$17,612.00	$70,448.00	$11.87
1994	$49,094.00	$26,634.00	$22,460.00	$898,400.00	$6,670.00	$26,680.00	$33.67	$16,602.00	$66,408.00	$13.53
1993	$46,197.00	$25,501.00	$20,696.00	$827,840.00	$6,365.00	$25,460.00	$32.52	$15,904.00	$63,616.00	$13.01
1992	$42,801.00	$24,408.00	$18,393.00	$735,720.00	$6,020.00	$24,080.00	$30.55	$15,009.00	$60,036.00	$12.25
1991	$41,808.00	$24,314.00	$17,494.00	$699,760.00	$5,693.00	$22,772.00	$30.73	$14,258.00	$57,032.00	$12.27
1990	$42,281.00	$24,553.00	$17,728.00	$709,120.00	$5,243.00	$20,972.00	$33.81	$13,237.00	$52,948.00	$13.39
1989	$41,911.00	$24,768.00	$17,143.00	$685,720.00	$4,975.00	$19,900.00	$34.46	$12,284.00	$49,136.00	$13.96
1988	$38,397.00	$23,614.00	$14,783.00	$591,320.00	$4,678.00	$18,712.00	$31.60	$11,474.00	$45,896.00	$12.88
1987	$36,907.00	$22,436.00	$14,471.00	$578,840.00	$4,403.00	$17,612.00	$32.87	$10,659.00	$42,636.00	$13.58
1986	$36,150.00	$21,700.00	$14,450.00	$578,000.00	$4,138.00	$16,552.00	$34.92	$10,039.00	$40,156.00	$14.39
1985	$34,243.00	$20,916.00	$13,327.00	$533,080.00	$3,859.00	$15,436.00	$34.53	$9,228.00	$36,912.00	$14.44
1984	$32,056.00	$20,479.00	$11,577.00	$463,080.00	$3,682.00	$14,728.00	$31.44	$8,451.00	$33,804.00	$13.70
1983	$29,718.00	$19,145.00	$10,573.00	$422,920.00	$3,433.00	$13,732.00	$30.80	$7,759.00	$31,036.00	$13.63
1982	$28,278.00	$18,598.00	$9,680.00	$387,200.00	$3,196.00	$12,784.00	$30.29	$7,126.00	$28,504.00	$13.58
1981	$26,694.00	$18,139.00	$8,555.00	$342,200.00	$2,871.00	$11,484.00	$29.80	$6,330.00	$25,320.00	$13.52
1980	$25,337.00	$17,181.00	$8,156.00	$326,240.00	$2,550.00	$10,200.00	$31.98	$5,594.00	$22,376.00	$14.58
1979	$23,399.00	$16,288.00	$7,111.00	$284,440.00	$2,327.00	$9,308.00	$30.56	$5,013.00	$20,052.00	$14.19
1978	$22,010.00	$15,152.00	$6,858.00	$274,320.00	$2,145.00	$8,580.00	$31.97	$4,609.00	$18,436.00	$14.88
1977	$20,222.00	$14,017.00	$6,205.00	$248,200.00	$2,038.00	$8,152.00	$30.45	$4,240.00	$16,960.00	$14.63
1976	$18,796.00	$13,051.00	$5,745.00	$229,800.00	$1,935.00	$7,740.00	$29.69	$3,977.00	$15,908.00	$14.45
1975	$17,618.00	$12,354.00	$5,264.00	$210,560.00	$1,811.00	$7,244.00	$29.07	$3,625.00	$14,500.00	$14.52
1974	$17,083.00	$11,884.00	$5,199.00	$207,960.00	$1,648.00	$6,592.00	$31.55	$3,379.00	$13,516.00	$15.39
1973	$15,794.00	$11,218.00	$4,576.00	$183,040.00	$1,598.00	$6,392.00	$28.64	$3,255.00	$13,020.00	$14.06
1972	$15,256.00	$10,433.00	$4,823.00	$192,920.00	$1,561.00	$6,244.00	$30.90	$3,142.00	$12,568.00	$15.35
1971	$14,158.00	$9,566.00	$4,592.00	$183,680.00	$1,478.00	$5,912.00	$31.07	$2,943.00	$11,772.00	$15.60
1970	$13,372.00	$9,185.00	$4,187.00	$167,480.00	$1,383.00	$5,532.00	$30.27	$2,783.00	$11,132.00	$15.04
1969	$13,258.00	$8,827.00	$4,431.00	$177,240.00	$1,275.00	$5,100.00	$34.75	$2,591.00	$10,364.00	$17.10
1968	$12,418.00	$8,148.00	$4,270.00	$170,800.00	$1,165.00	$4,660.00	$36.65	$2,395.00	$9,580.00	$17.83
1967	$11,232.00	$7,629.00	$3,603.00	$144,120.00	$1,122.00	$4,488.00	$32.11	$2,253.00	$9,012.00	$15.99
1966					$1,096.00	$4,384.00		$2,149.00	$8,596.00	

Females - Benefit/Cost Ratios

	Mean Income				Public 4-Year Cost		Income	Private 4-Year Cost		Income
	Bachelor's Degree	HS Graduate	Difference	Lifetime Difference	Institutional Charges	Degree Cost	to Cost Ratio	Institutional Charges	Degree Cost	to Cost Ratio
Year	A	B	C=A-B	D=C*40	E	F=E*4	G=D/F	H	I=H*4	J=E/J
2000					$8,737.00	$34,948.00		$22,204.00	$88,816.00	
1999	$32,803.00	$17,736.00	$15,067.00	$602,680.00	$8,341.00	$33,364.00	$18.06	$21,020.00	$84,080.00	$7.17
1998	$31,766.00	$17,284.00	$14,482.00	$579,280.00	$8,018.00	$32,072.00	$18.06	$19,970.00	$79,880.00	$7.25
1997	$30,574.00	$16,678.00	$13,896.00	$555,840.00	$7,673.00	$30,692.00	$18.11	$19,070.00	$76,280.00	$7.29
1996	$28,926.00	$15,848.00	$13,078.00	$523,120.00	$7,334.00	$29,336.00	$17.83	$18,442.00	$73,768.00	$7.09
1995	$26,927.00	$15,359.00	$11,568.00	$462,720.00	$7,014.00	$28,056.00	$16.49	$17,612.00	$70,448.00	$6.57
1994	$26,466.00	$14,236.00	$12,230.00	$489,200.00	$6,670.00	$26,680.00	$18.34	$16,602.00	$66,408.00	$7.37
1993	$25,579.00	$13,844.00	$11,735.00	$469,400.00	$6,365.00	$25,460.00	$18.44	$15,904.00	$63,616.00	$7.38
1992	$24,400.00	$13,300.00	$11,100.00	$444,000.00	$6,020.00	$24,080.00	$18.44	$15,009.00	$60,036.00	$7.40
1991	$23,237.00	$13,104.00	$10,133.00	$405,320.00	$5,693.00	$22,772.00	$17.80	$14,258.00	$57,032.00	$7.11
1990	$22,147.00	$13,034.00	$9,113.00	$364,520.00	$5,243.00	$20,972.00	$17.38	$13,237.00	$52,948.00	$6.88
1989	$21,140.00	$12,471.00	$8,669.00	$346,760.00	$4,975.00	$19,900.00	$17.43	$12,284.00	$49,136.00	$7.06
1988	$19,814.00	$11,743.00	$8,071.00	$322,840.00	$4,678.00	$18,712.00	$17.25	$11,474.00	$45,896.00	$7.03
1987	$18,347.00	$11,176.00	$7,171.00	$286,840.00	$4,403.00	$17,612.00	$16.29	$10,659.00	$42,636.00	$6.73
1986	$17,603.00	$10,517.00	$7,086.00	$283,440.00	$4,138.00	$16,552.00	$17.12	$10,039.00	$40,156.00	$7.06
1985	$16,288.00	$10,120.00	$6,168.00	$246,720.00	$3,859.00	$15,436.00	$15.98	$9,228.00	$36,912.00	$6.68
1984	$15,141.00	$9,610.00	$5,531.00	$221,240.00	$3,682.00	$14,728.00	$15.02	$8,451.00	$33,804.00	$6.54
1983	$13,793.00	$8,934.00	$4,859.00	$194,360.00	$3,433.00	$13,732.00	$14.15	$7,759.00	$31,036.00	$6.26
1982	$12,711.00	$8,512.00	$4,199.00	$167,960.00	$3,196.00	$12,784.00	$13.14	$7,126.00	$28,504.00	$5.89
1981	$11,360.00	$7,817.00	$3,543.00	$141,720.00	$2,871.00	$11,484.00	$12.34	$6,330.00	$25,320.00	$5.60
1980	$10,614.00	$7,138.00	$3,476.00	$139,040.00	$2,550.00	$10,200.00	$13.63	$5,594.00	$22,376.00	$6.21
1979	$9,184.00	$6,402.00	$2,782.00	$111,280.00	$2,327.00	$9,308.00	$11.96	$5,013.00	$20,052.00	$5.55
1978	$8,595.00	$6,173.00	$2,422.00	$96,880.00	$2,145.00	$8,580.00	$11.29	$4,609.00	$18,436.00	$5.25
1977	$8,529.00	$6,063.00	$2,466.00	$98,640.00	$2,038.00	$8,152.00	$12.10	$4,240.00	$16,960.00	$5.82
1976	$7,980.00	$5,603.00	$2,377.00	$95,080.00	$1,935.00	$7,740.00	$12.28	$3,977.00	$15,908.00	$5.98
1975	$7,537.00	$5,155.00	$2,382.00	$95,280.00	$1,811.00	$7,244.00	$13.15	$3,625.00	$14,500.00	$6.57
1974	$7,092.00	$4,813.00	$2,279.00	$91,160.00	$1,648.00	$6,592.00	$13.83	$3,379.00	$13,516.00	$6.74
1973	$6,383.00	$4,489.00	$1,894.00	$75,760.00	$1,598.00	$6,392.00	$11.85	$3,255.00	$13,020.00	$5.82
1972	$6,121.00	$4,261.00	$1,860.00	$74,400.00	$1,561.00	$6,244.00	$11.92	$3,142.00	$12,568.00	$5.92
1971	$5,915.00	$3,952.00	$1,963.00	$78,520.00	$1,478.00	$5,912.00	$13.28	$2,943.00	$11,772.00	$6.67
1970	$5,701.00	$3,758.00	$1,943.00	$77,720.00	$1,383.00	$5,532.00	$14.05	$2,783.00	$11,132.00	$6.98
1969	$5,309.00	$3,543.00	$1,766.00	$70,640.00	$1,275.00	$5,100.00	$13.85	$2,591.00	$10,364.00	$6.82
1968	$4,639.00	$3,321.00	$1,318.00	$52,720.00	$1,165.00	$4,660.00	$11.31	$2,395.00	$9,580.00	$5.50
1967	$4,759.00	$3,149.00	$1,610.00	$64,400.00	$1,122.00	$4,488.00	$14.35	$2,253.00	$9,012.00	$7.15
1966					$1,096.00	$4,384.00		$2,149.00	$8,596.00	

Educational Enlistment Standards and Attrition in Military Service

OPPORTUNITY considers military service a form of postsecondary education and training, similar to collegiate and vocational postsecondary education and training available in the civilian sector. In effect, the military competes with colleges and universities for recent high school graduates. It recruits and screens potential enlistees. Many leave military service before completing the term of their enlistment, just as colleges loose students they enroll.

The processes are so similar that we review one aspect of the military experience with attrition here to see what insights it may offer collegiate recruiting and enrollment management.

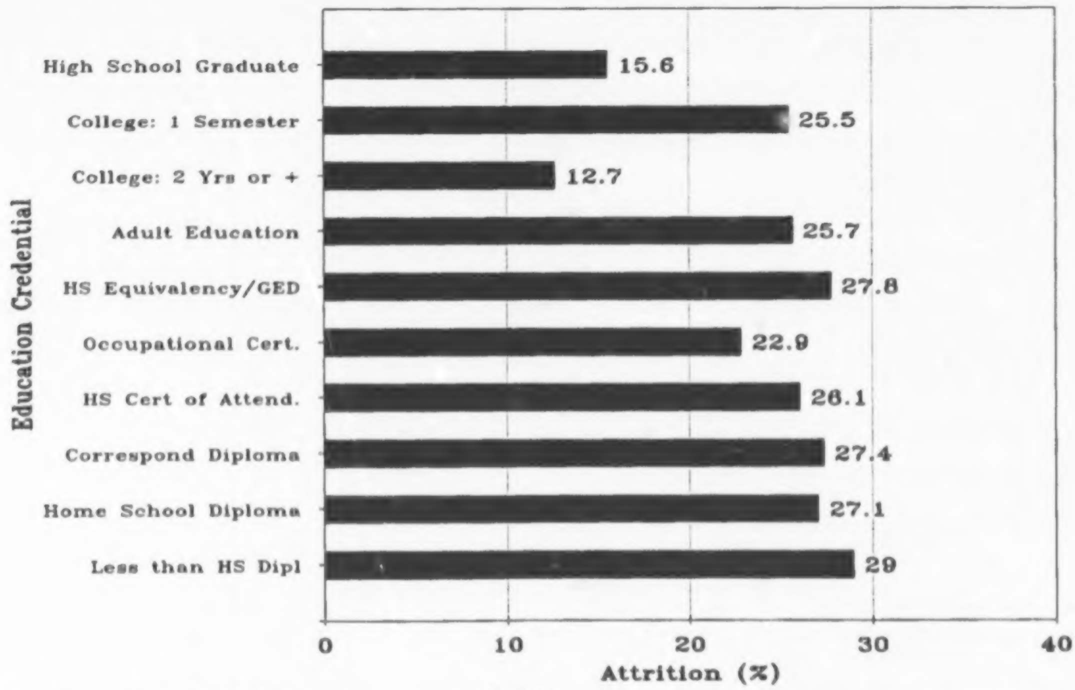
In particular, we are interested here in the attrition experience of the military among those who enlist with GED certification compared to those who receive a regular high school diploma. OPPORTUNITY has been concerned about the shift in high school completion, away from regular high school graduation and toward alternative GED certification that has been occurring since 1983. (See OPPORTUNITY #87 for September 1999.)

The declining share of ninth grade students that receive a regular high school diploma at the end of twelfth grade appears to be a consequence of state efforts to raise the bar to high school graduation. Many if not most of these high school dropouts later seek high school equivalency certification through the GED.

Anecdotal evidence from higher education suggests that GED recipients often do not perform as well in college as do regular high school diploma recipients. Thus, here we examine the experience of GED recipients in military service. This has been well-studied by the Department of Defense, and the findings and conclusions are relevant and important to colleges and universities.

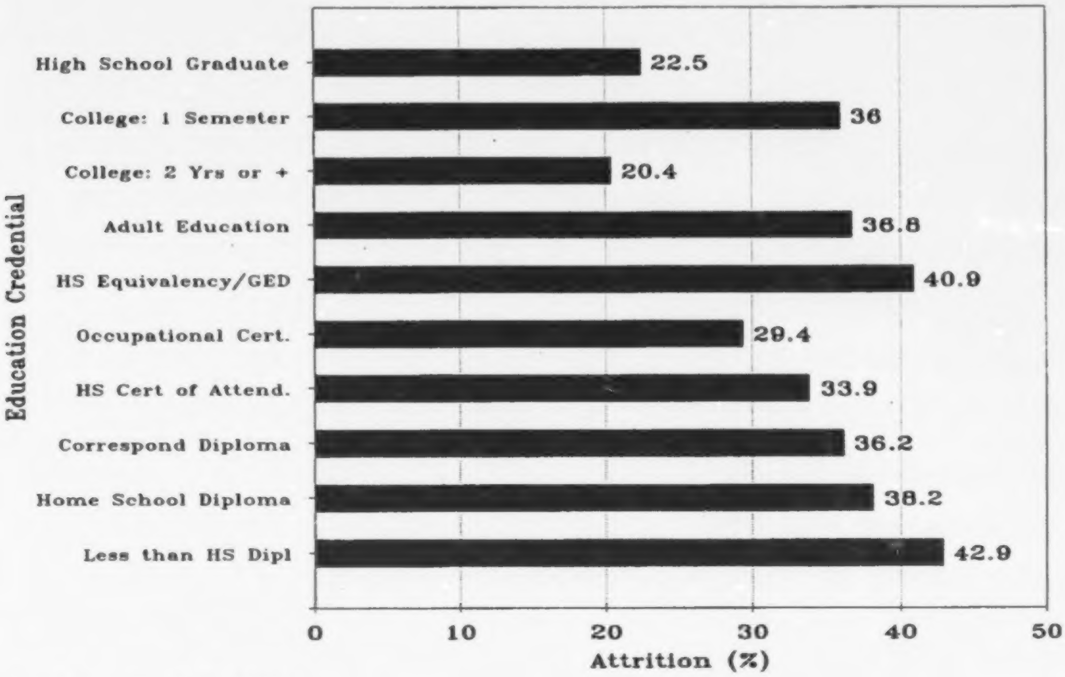
Our report here is based on a 1996 report to Congress prepared by the Defense Department, and was supplied to us by Dr. Jane Arabian of DoD.

Attrition by 12 Months for Non Prior Service Accessions by Education Credential, All Military Branches FY1988-FY1994



Source: Department of Defense

Attrition by 24 Months for Non Prior Service Accessions by Education Credential, All Military Branches FY1988-FY1993



Source: Department of Defense

Educational Enlistment Standards: Recruiting Equity for GED Certificates. (April 1996.) Report to Congress. Office of the Assistant Secretary of Defense, Force Management Policy.

Military Accession and Attrition

Each year the Department of Defense enlists about 200,000 young men and women in the active duty military services--Army, Navy, Marine Corps and Air Force. Each recruit signs a contract for a specified period of service ranging from two to six years, and averaging 4 years. Each branch of the military makes substantial investments in recruiting and training in those who enlist for service.

Since 1973 military enlistment has been voluntary. In this All Volunteer Force (AVF), the average length of service is greater than it was during the draft era. However, failure to complete the initial period of obligation has been greater in the AVF era. About a third of each new recruit cohort (accession) leaves the military before their terms are completed. This is called attrition in the military (and in colleges).

Attrition is attributable to a variety of causes including medical causes. About 80 percent of attrition is described as failure to meet minimum behavioral or performance criteria. The AVF permits the expeditious separation of marginal, recalcitrant and reluctant recruits.

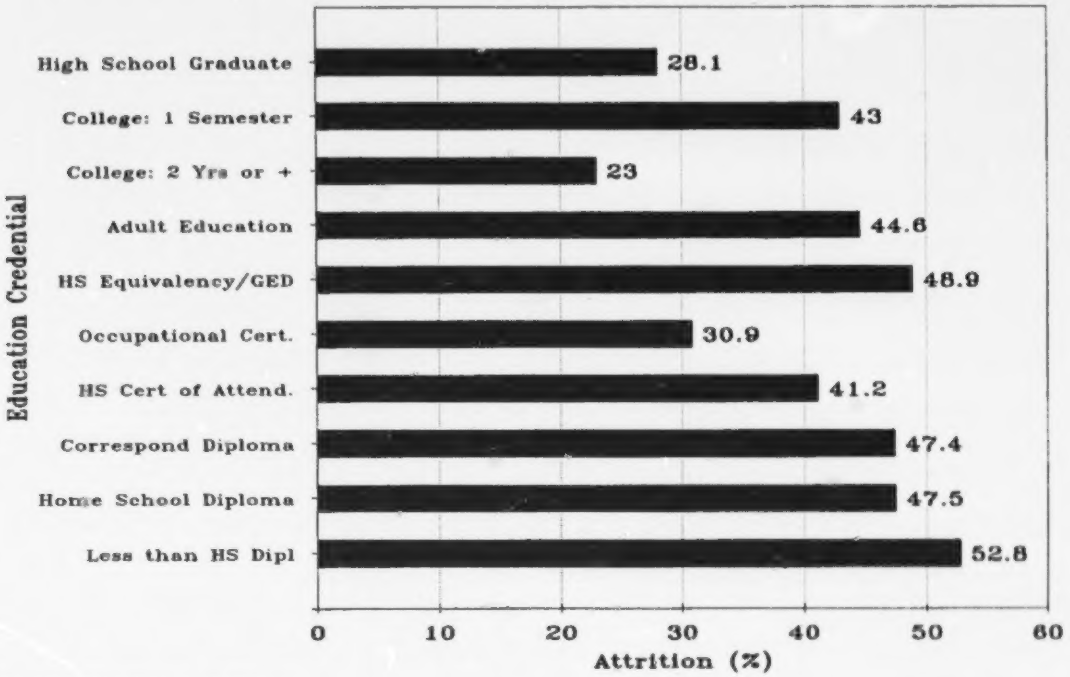
However, military attrition is expensive. Investments in recruiting and training of enlistees are lost in attrition. Thus, first-term attrition of enlisted personnel is managed through the selection of applicants.

Education Credentials

Beginning in the 1960s, the military began emphasizing the high school diploma in enlistments. Those without high school diplomas or its equivalent were required to meet higher aptitude and moral standards. Subsequent research on attrition showed that the attrition among GED recipients was more like that of non-graduates than graduates. Therefore since the 1970s the military no longer considers GED holders equivalent to regular high school diploma graduates for enlistment purposes.

During the 1970s and 1980s, with the proliferation of secondary schools and

Attrition by 36 Months for Non Prior Service Accessions by Education Credential, All Military Branches FY1988-FY1992



Source: Department of Defense

certification, the Defense Department began studying the attrition rates for enlistees with different forms of secondary education credentials. In addition to the established GED, these included adult education diplomas, home schooled, and other equivalency certificates.

Out of this review emerged a three-tiered classification system according to attrition rates.

- Tier 1 included those credentials with the lowest attrition rates and thus preferred enlistment status. These included high school graduates and those who had attended college.
- Tier 2, with high attrition experience, included those with various alternative high school credentials.
- Tier 3 included those with less than a high school diploma.

Attrition Experience

The Defense Department attrition studies examined the performance of non prior service (NPS) accessions through 12, 24 and 36 month periods following enlistment. Cohorts of enlistees from the period FY1988 to FY1993 were studied.

The cohort studied for twelve month attrition included 1.5 million enlistees. The cohort studied for 24 month attrition included 1.3 million enlistees. The cohort studied for 36 month attrition included 1.1 million enlistees.

About 37 percent of accessions enter the Army, 32 percent enter the Navy, 15 percent enter the Marine Corps, and 16 percent enter the Air Force.

About 90 percent of all accessions enter with a high school diploma. Another 4 percent enter with some college. About 2.7 percent enter with a GED or other equivalent certification. The remaining 3.7 percent have other educational credentials.

At 12 months, the attrition rate for all enlistees was 16.4 percent. At 24 months it rose to 23.6 percent. By 36 months the attrition rate rose to 29.4 percent.

Here the Defense Department study breaks down attrition rates by education credentials.

- At 12 months, the attrition rates ranged from 12.7 percent for enlistees with 2 or more years of college to 29.0 percent for those who had less than a high school diploma. High school graduates had an attrition rate of 15.6 percent, while GED recipients had an attrition rate of 27.8 percent.

- At 24 months the attrition pattern established at 12 months persists, but additional attrition has occurred at each educational credential. Attrition rates range from 20.4 percent for those with 2 years or more of college to 42.9 percent for those who have less than a high school diploma. High school graduates had an attrition rate of 22.5 percent compared to 40.9 percent for those with a GED or other equivalency certificate.
- At 36 months the attrition rate ranged from 23.0 percent for those with two years or more of college to 52.8 percent of those with less than a high school diploma. For high school graduates the attrition rate was 28.1 percent, compared to 48.9 percent for those with GED or other equivalency certificate.

The attrition experiences in the four active duty military services closely follow the above patterns. For example:

- High school graduate attrition experience at 24 months ranges from 18.0 percent in the Air Force to 23.6 percent in the Army.
- Equivalency certificate holders (GED) have attrition rates ranging from 30.1 percent in the Air Force to 43.5 percent in the Marine Corps.
- Those with two years or more of college had attrition rates that ranged from 14.8 percent in the Air Force to 24.1 percent in the Marine Corps.

Summary

This large scale study of attrition among 1.5 million military non prior service accessions between FY1988 and FY1994 shows clear differences in attrition across enlistees grouped by educational credentials.

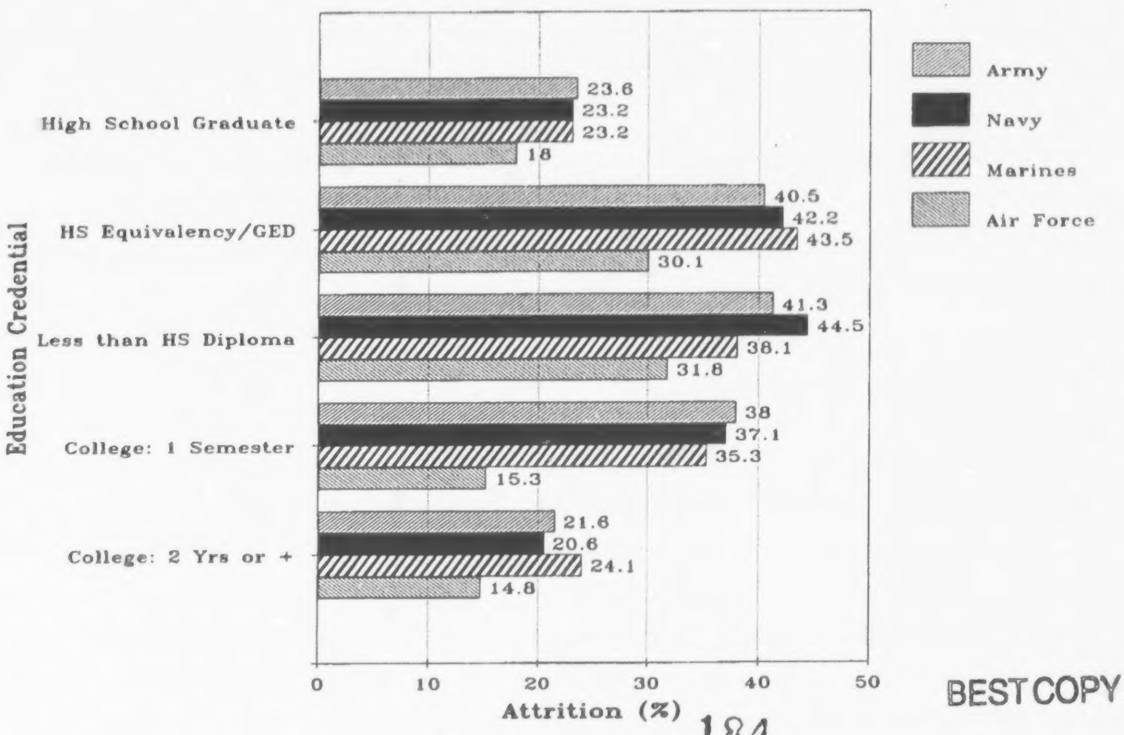
- Those with the lowest attrition rates bring with them either two years or college or more, or come only with a high school diploma.

- Those with any other form of educational credential have considerably higher attrition rates.

- Compared to those entering with a high school diploma, the attrition rates for those with high school equivalency certification (GED) are nearly twice as high.

For the military, accession strategy focusing on high school graduates and those with two or more years of college appears to be an effective strategy to reduce recruitment and training costs of enlistees.

Attrition by 24 Months for Non Prior Service Accessions
by Education Credential and by Military Service Branch
FY1988-FY1993



The Taxes We Pay

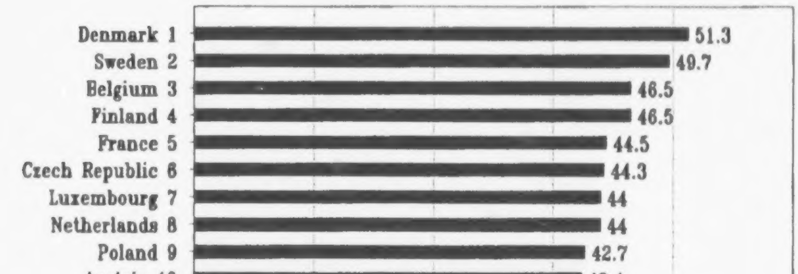
To listen to the two major party candidates during the recent presidential election campaign, a visiting Martian might think Americans must be the most heavily taxed people on earth. One candidate proposed middle income tax cuts, and the other proposed tax cuts mainly for the rich.

Given the effort made by the two presidential candidates on this issue, their campaigns must have detected among voters a sense that we are badly overtaxed and that voters would think their proposals important in deciding their vote.

International Ranking

If only it were true that Americans are badly overtaxed. But its not. By widely used and internationally accepted standards, the United States is the tax haven of the industrial world. Adding up all of the federal, state and local government taxes we pay, the United States ranks 26th among the 29 member countries of the Organization for Economic Cooperation and Development (OECD) in total tax receipts by government as a proportion of Gross Domestic Product, as shown in the chart on this page.

Total Tax Receipts
as a Percent of Gross Domestic Product
FY1995



Source: OECD

All of the federal, state and local government taxes paid by Americans only constitute 27.9 percent of our economic activity. In thirteen of the OECD countries, taxes comprise more than 40 percent of their GDPs.

State Ranking

The chart on the next page shows federal, state and local taxes paid in each state as a proportion of each state's Gross State Product (GSP). This calculation is very similar to the chart on this page.

What this indicates is that taxes represent differing shares of gross state product across the 50 states. In FY1996 the range was from 21.5 percent of GSP in **Wyoming** to 31.3 percent in **Maryland**. This is a far narrower range across the 50 states than is the range across the 29 countries that are members of the OECD.

The variation across states represents a variety of factors, but are largely related to the tax base and rate of taxation on that base in each state. There are variations in federal tax revenues that relate in part to the incomes available for taxation.

More significantly, states have direct control and responsibility for taxing the economic values in their own states. Some choose lower rates (and receive fewer state services in return), while other states choose to tax themselves at higher rates (to receive more state services in return).

Expenditures

Why are taxes important? Because governments--federal, state and local--all provide public services that we have requested and that many of us use every day. These public services are financed with our tax revenues.

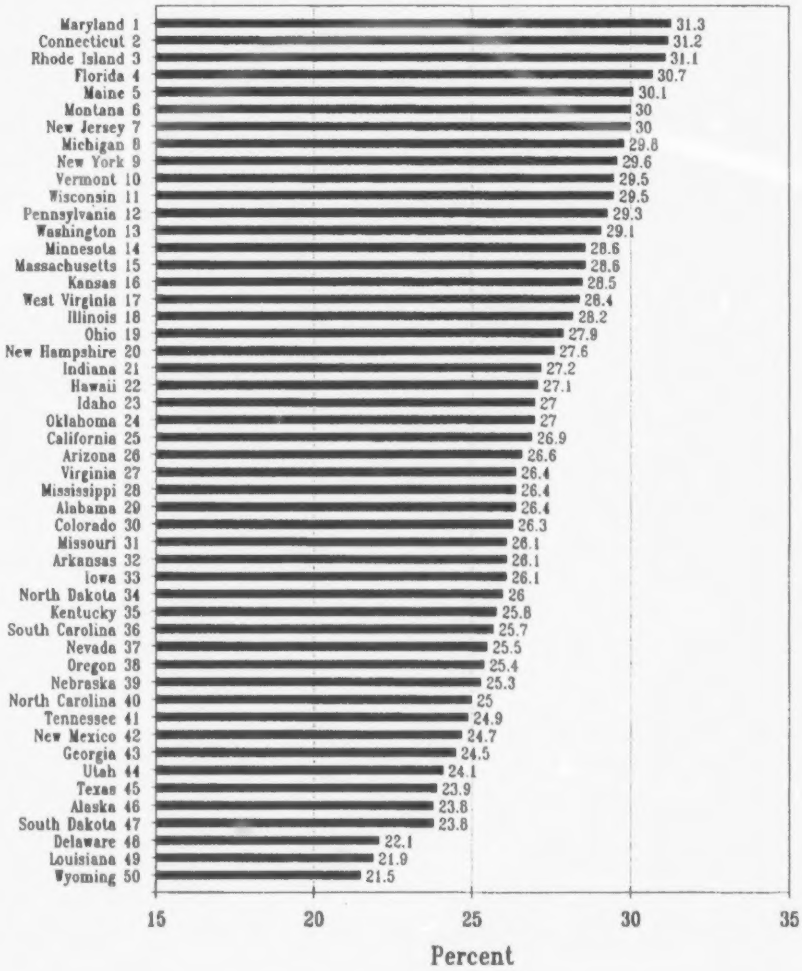
At the federal level, government expenditures in 1999 totaled $1,750.2 billion. By function for 1999 (as used by the Bureau of Economic Analysis in the National Income and Product Accounts) they were distributed as follows.

Federal Expenditures

General public service	**17.2%**
Executive and legislative	1.7%
Tax collection, finan mgmnt	0.4%
Net interest paid	15.1%
National defense	**17.9%**
Public order and safety	**1.2%**
Police	0.7%
Law courts	0.4%
Prisons	0.2%
Economic affairs	**5.2%**
General economic & labor affrs	0.8%
Agriculture	1.9%
Energy	0.2%
Natural resources	0.7%
Transportation	0.9%
Other	0.8%
Housing & community service	**1.7%**
Health	**21.5%**
Recreation and culture	**0.2%**
Education	**2.4%**
Elementary and secondary	0.9%
Higher	0.8%
Other	0.6%
Income security	**32.7%**
Disability	4.4%
Retirement	19.4%
Welfare and social services	5.5%
Unemployment	1.4%
Other	1.9%

At the state and local government level, in 1999 expenditures totaled $1,092.7 billion. By funtion they were distributed as follows:

Federal, State and Local Taxes as a Share of Gross State Product, FY1996



State and Local Expenditures

General public service	**9.4%**
Executive and legislative	1.4%
Tax collection, finan mgmnt	2.9%
Net interest paid	-0.3%
Other	5.4%
Public order and safety	**14.3%**
Police	5.6%
Fire	2.0%
Law courts	2.5%
Prisons	4.2%
Economic affairs	**8.0%**
General economic & labor affrs	1.3%
Agriculture	0.4%
Energy	-0.6%
Natural resources	0.8%
Transportation	7.3%
Other	-1.3%
Housing & community service	**0.5%**
Health	**19.3%**
Recreation and culture	**1.3%**
Education	**38.3%**
Elementary and secondary	29.6%
Higher	6.2%
Libraries	0.6%
Other	0.4%
Income security	**8.9%**
Disability	1.3%
Welfare and social services	7.6%

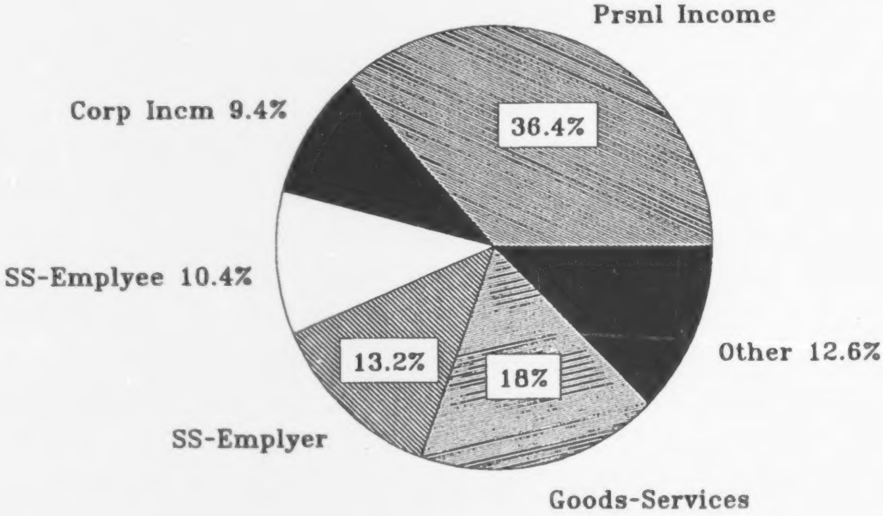
Sources of Tax Revenues

While taxes represent a relatively small share of Gross Domestic Product in the United States compared to other OECD countries, we also tend to tax ourselves somewhat differently from other countries.

The pie chart on this page summarizes the tax receipts of federal, state and local governments in the U.S. in FY1995. Compared to the OECD countries, the U.S. gets a somewhat larger share of its taxes from personal income and employee contribution to social security. We derive a somewhat smaller share from taxes on goods and services and employers' share of social security.

We are not, however, overtaxed. But we may be underserved.

Tax Receipts by Source in the United States FY1995



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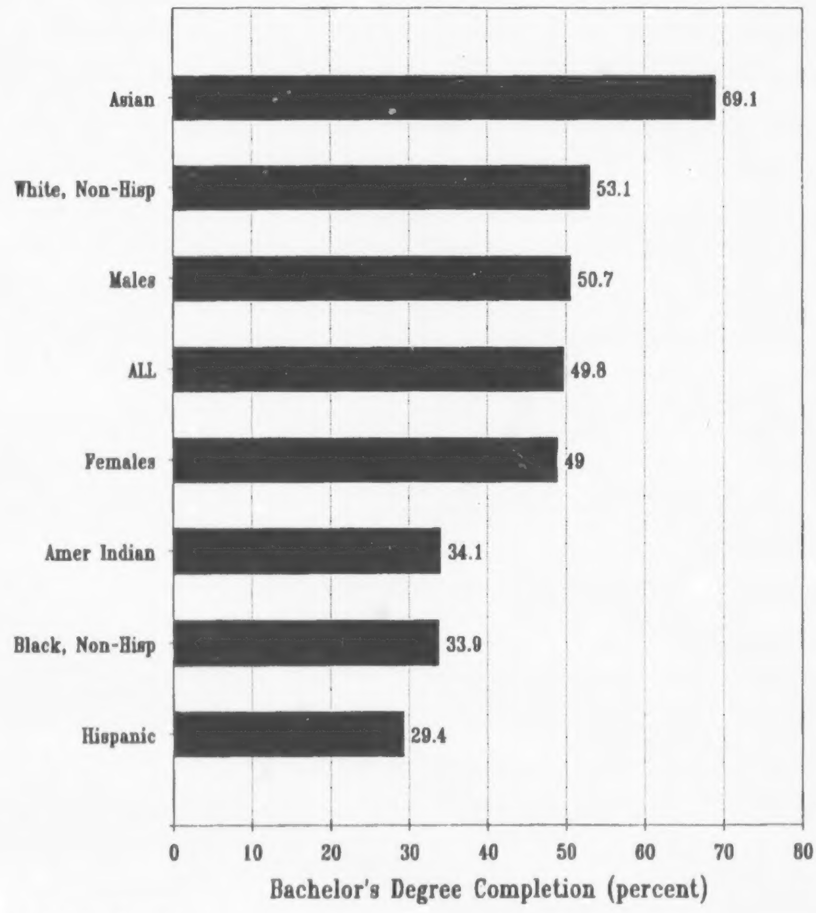
Undergraduate Degree Completion by Age 25 to 29 for Those Who Start College 1992 to 2000

Bachelor's Degree Completion by Age 25 to 29 for Those Who Have Entered College 2000



Source: Census Bureau

Among those who start college, about two thirds will earn an undergraduate degree from college, either an associate's degree or a bachelor's degree by the time they are 25 to 29 years old. Nearly a third will start college but leave before obtaining a degree.

These completion rates vary widely across different population groups. Over three-quarters of Asians/Pacific Islanders who start college will obtain a degree. But less than half of all Hispanics will leave with an associate's or bachelor's degree by the time they are 25 to 29 years old.

American Indians are most likely to leave college with an associate's degree (perhaps because so many tribal colleges are two-year institutions). Asians are most likely to leave college with a bachelor's degree.

Among those who started college, by age 25 to 29 years the proportion of those whose highest degree completed was a bachelor's degree increased from 48.3 to 49.8 percent between 1992 and 2000. The proportion whose highest degree completed was as an associate's degree increased from 13.5 to 14.9 percent during the same period.

These and other findings are gleaned from data collected, tabulated and reported by the Census Bureau. These data are available in the current form for the nine years between 1992 and 2000. Major changes in data definitions implemented by the Census Bureau with the 1992 Current Population Survey limit comparisons between data collected prior to 1992 with the data collected beginning with the March 1992 Current Population Survey. These changes in definitions represent improvements to data examined for our purposes here.

Moreover, more recent improvements in racial/ethnic reporting implemented in the 1999 Current Population Survey offer highly significant insights into patterns and trends in undergraduate degree completion.

What this analysis does is examine college completion rates across populations and over time. That is, we look at the ratios of highest degree completed to the total population that entered college with specific characteristics such as gender, race/ethnicity and year. This analysis is intended to be useful to understanding patterns and trends in undergraduate degree completion for those who start a college education.

The Data

All of the data used here have been either reported by the Census Bureau, or derived from reported Census Bureau data.

These data are collected in the March Current Population Survey (CPS). The CPS is a monthly survey of about 50,000 households. It is mainly designed to gather data on employment and unemployment. Monthly supplements to the basic CPS questionnaire gather data on school enrollment (October) and educational attainment (March).

Data collected in recent years, including much of what is analyzed here, is available from the Census Bureau's website:

http://www.census.gov/population/www/socdemo/educ-attn.html

Beginning in 1992 the Census Bureau made two major changes to its definitions of educational participation and completion. First, Census changed its definition of educational attainment from years of school completed to highest degree earned. Through 1991 the CPS reported, for example, its count of the number of students that had completed four years of college. Beginning in 1992 Census reported highest degree completed, e.g. associate, bachelor's, master's, etc.

The second change involved those with any college. Prior to 1992 only those who had completed one year of college were counted. Beginning in 1992 Census began counting and including those who had begun but not completed one year of college. This increases the size of the denominator in the ratios we have calculated.

Census has now published nine years of CPS data under the new definitions. It is these new data that we examined for this report.

A more recent reporting change concerns racial/ethnic reporting. Through 1998, the standard racial/ethnic categories were:

total
white
black
Hispanic

where Hispanics could be of any race, but about 95 percent were already counted in the data for whites.

Beginning in 1999 Census began reporting:

total
white, non-Hispanic
black, non-Hispanic

Newburger, E.C., and Curry, A.A. (December 2000). *Educational Attainment in the United States (Update).* Current Population Reports, P20-536. Washington, DC: U.S. Department of Commerce, Census Bureau.

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Mission Statement

This research letter is founded on two fundamental beliefs. First, sound public social policy requires accurate, current, independent, and focused information on the human condition. Second, education is essential to the development of human potential and resources for both private and public benefit. Therefore, the purpose of this research letter is to inform those who formulate, fund, and administer public policy and programs about the condition of and influences that affect postsecondary education opportunity for all Americans.

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Password: RichardJohnston

Asian/Pacific Islander-non-Hispanic
Hispanic

These racial/ethnic classification schemes invited and continue to invite our elaboration.

- For example, under the former racial/ethnic classifications, assuming all Hispanics were white we could derive non-Hispanic white data by subtracting Hispanic from white.
- Similarly, we could derive "other race" (mainly Asians, but including American Indians) by subtracting white and black from population totals.
- We have derived American Indian data from the 1999 and 2000 data by subtracting from the population total white non-Hispanic, black non-Hispanic, Asian/PI non-Hispanic and Hispanic.

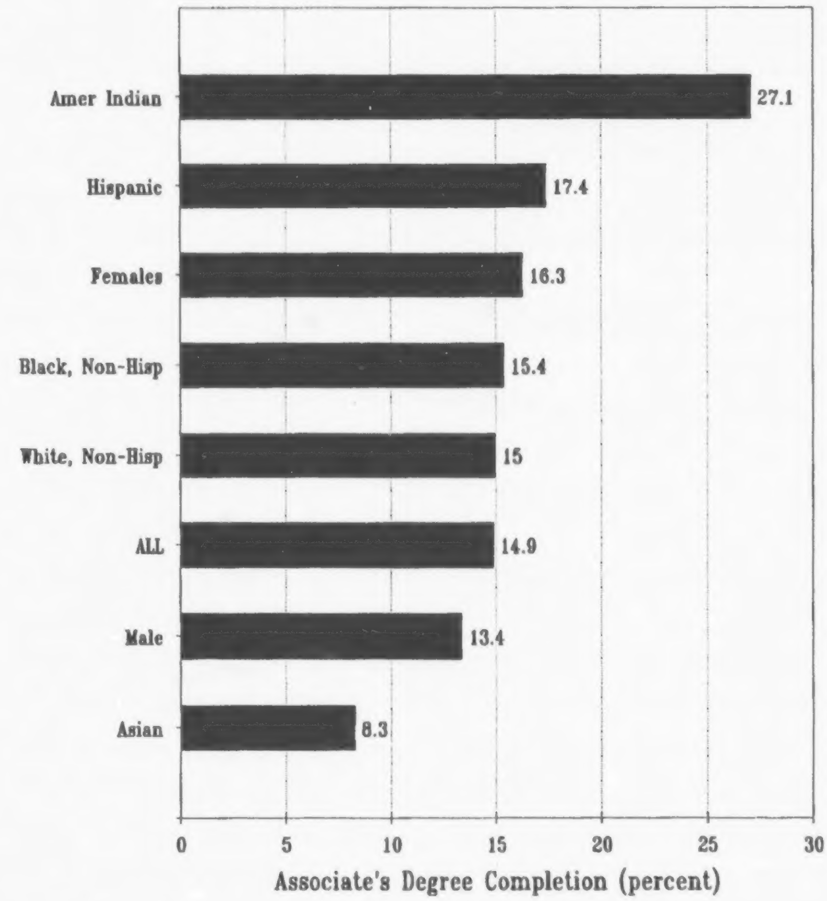
While these elaborations on data published by the Census Bureau may appear to be just exercises, two valuable insights into the data are gained. First we have expanded our insight into white non-Hispanic, Asian and American Indian college completion behaviors in ways not heretofore reported.

Second, this elaboration reveals significant and rapid changes in the racial/ethnic character of the 25 to 29 year old population with any college in the short period between 1992 and 2000. Among those with any college, the following were the percentage changes in the population of each distinct racial/ethnic group between 1992 and 2000:

population	+8.2%
white, non-Hispanic	-2.8%
black, non-Hispanic	+36.0%
other race (mainly Asian)	+72.2%
Hispanic	+52.6%

Changes such as these are of clear significance to those planning for diversity in college enrollments and future workforces.

Associate's Degree Completion by Age 25 to 29
for Those Who Have Entered College
2000

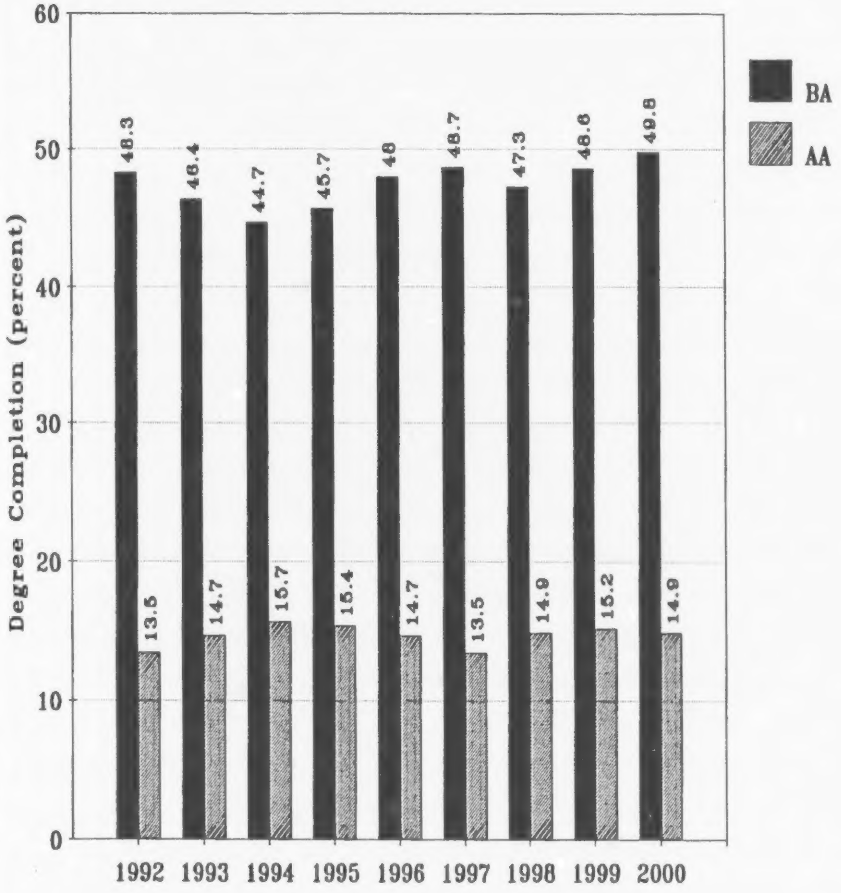


Source: Census Bureau

Degree Completion

In March of 2000 there were 10,657,000 people between the ages of 25 and 29 years who had entered college at some point in their lives. Of this total, 6,895,000 had completed an associate degree or more from college. This was 64.7 percent of the population of those who had started college. Again out of the total, 5,307,000 had completed a bachelor's degree or more from college. This was 49.8 percent of those who had started college. Both of these rates are undergraduate degree college completion rates.

For our analyses here, we disaggregate undergraduate degrees into those who completed an associate's degree only, and those who completed a bachelor's degree (or more). Among the 25 to 29 years olds in March of 2000, 1,588,000 people had completed the associate degree as their highest degree. Of this total 821,000 were occupational associate degrees and 767,000 were academic associate degrees, to use the Census Bureau terminology.



Undergraduate Degree Completion by Age 25 to 29
for Those Who Enter College
1992 to 2000

Source: Census Bureau

Among the 25 to 26 year olds, 5,307,000 had completed a bachelor's degree or more. Of this number, 4,313,000 had bachelor's degrees as their highest degree completed, 735,000 held the master's degree as their highest degree, 184,000 held professional degrees and 75,000 held doctorate degrees.

Of course not everyone receives an undergraduate degree. In 2000, of those 25 to 29 who had started college, 3,762,000 had some college but no degree. This was about 35 percent of those who had started college. Of course some of these students may still be enrolled, or will enroll later and complete their undergraduate degree. The 2000 data suggests a few more will complete a bachelor's degree. But the same is not true for associate degrees. Only about 70 percent of associate degrees appear to have been awarded by age 25 to 29 years. More will be awarded after 29.

Racial/Ethnic and Gender

The chart on page 1 of this issue of OPPORTUNITY shows bachelor's degree completion rates for both genders and each measurable and distinct racial/ethnic group as of March 2000. While 49.8 percent of the total 25 to 29 year old population that had started college sometime had completed a bachelor's degree, the rates varied widely.

By gender, males were slightly more likely than females to have completed at least a bachelor's degree if they started college, 50.7 to 49.0 percent.

But across racial/ethnic groups the differences in bachelor's degree completion rates were far greater. Non-Hispanic Asian/Pacific Islanders who had entered college had a bachelor's degree completion rate of 69.1 percent. At the other extreme, Hispanics with some college had a bachelor's degree completion rate of 29.4 percent, or less than half that of the Asians.

Notably, the groups with the highest bachelor's degree completion rates-Asians and whites--had the highest median family incomes. Those with the lowest bachelor's degree completion rates had the lowest median family incomes--Hispanics, blacks and American Indians.

The chart on page 3 shows associate degree completion rates by gender and race/ethnicity in March of 2000. This is the highest completed degree for these 25 to 29 year olds. In 2000 there were about 1,588,000 25 to 29 year olds with associate degrees as their highest completed degree. Of all who had started college, for 14.9 percent this was the highest degree completed. Of this total 821,000 were occupational and 767,000 were academic.

Trends

The data on college completion rates are available for the nine years between 1992 and 2000. While this is a relatively short period to study trends, some results are interesting and a few quite important.

The chart on page 4 shows bachelor's degree and associate degree completion rates for all 25 to 29 year olds. For this population, the proportion with an undergraduate degree--either AA or BA--was 64.7 percent in 2000. This was the highest rate for the nine years of available data. In 1992, the first year of these data, 61.8 percent had completed an undergraduate degree. This dropped to a low of 60.7 percent in 1994, before rising to the recent record high level.

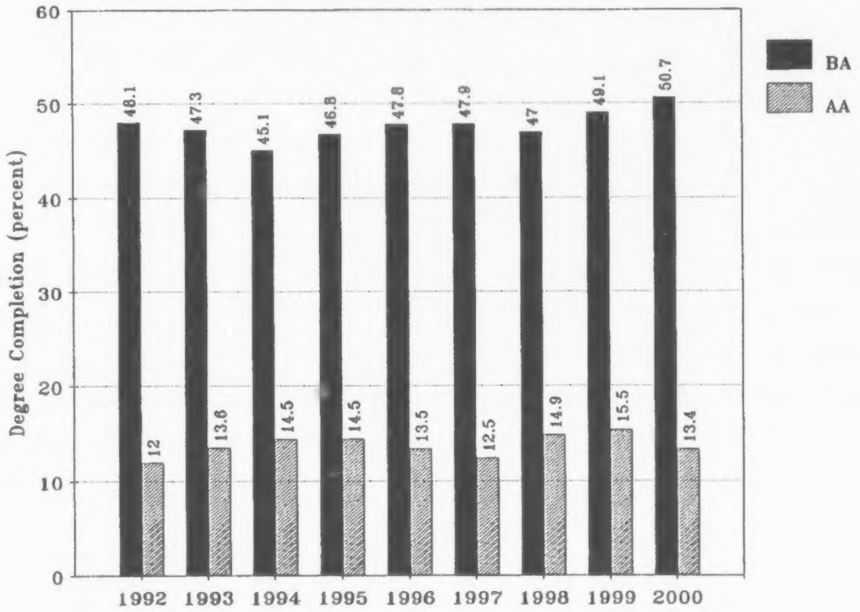
This chart shows something else of interest. Between 1992 and 1994, while the bachelor's degree completion rate was declining, the associate degree completion rate was increasing. Then, between 1994 and 2000, the bachelor's degree completion rate rose while the associate degree completion rate declined.

These shifts are small. But they appear to follow changes in the business cycle that are know to affect college enrollments. The economic recession of the early 1990s appears to have benefitted two-year degree completion, while the subsequent and prolonged economic expansion appears to have benefitted four-year degree completion.

Gender. The preceding patterns tend to hold for both males and females in undergraduate degree completion by age 25 to 29 years, as shown in the charts on this page.

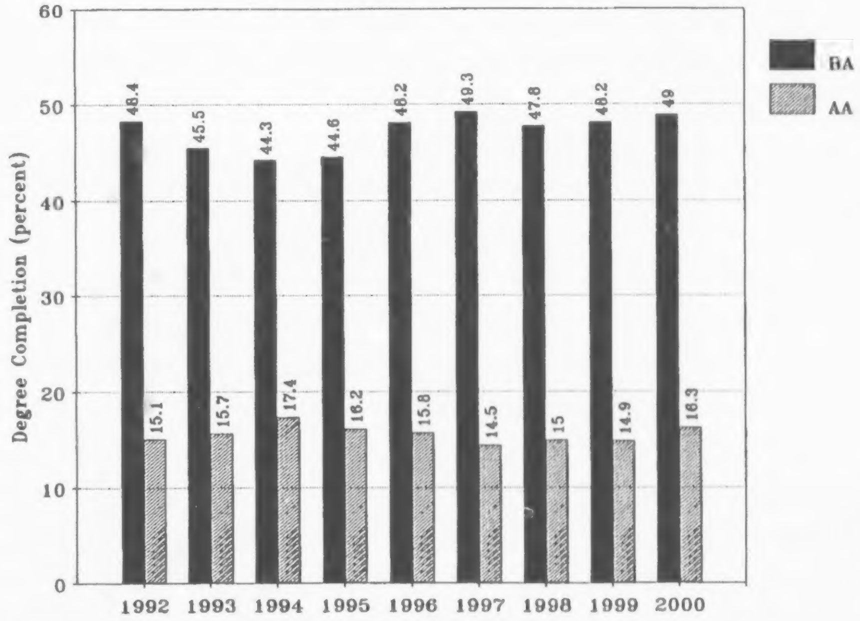
Out of 4,925,000 males age 25 to 29 that had entered college by March 2000, 3,155,000 had an associate degree or more, or 64.1 percent. 2,498,000 had a bachelor's degree or more, or 50.7 percent of those that had started college. 1,770,000 males had some college but had completed no undergraduate degree.

Undergraduate Degree Completion for Males by Age 25 to 29 Years for Those Entering College 1992 to 2000



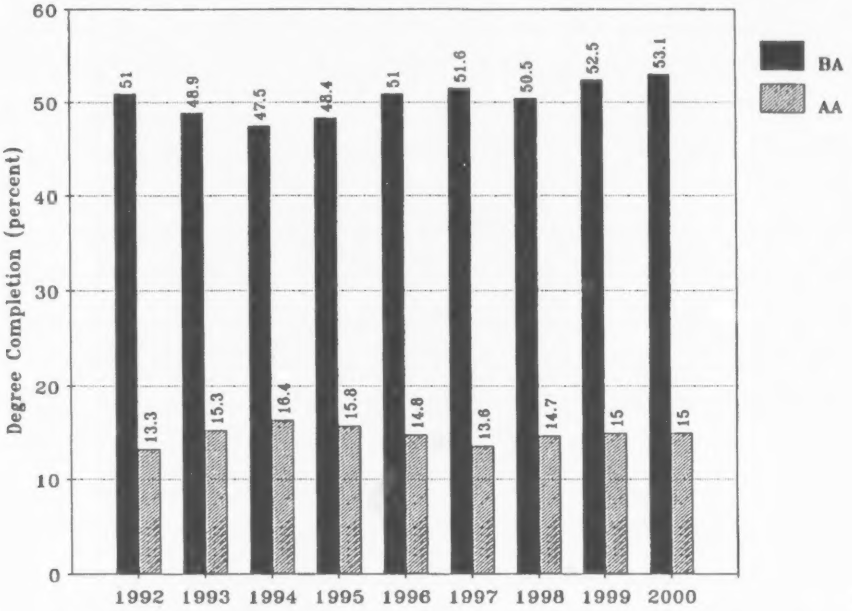
Source: Census Bureau

Undergraduate Degree Completion for Females by Age 25 to 29 Years for Those Entering College 1992 to 2000



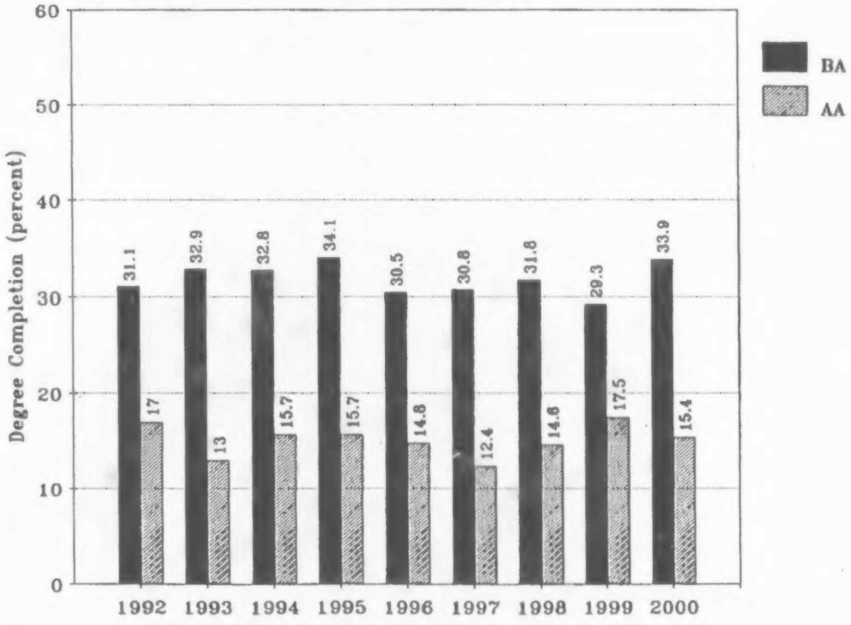
Source: Census Bureau

Undergraduate Degree Completion for Non-Hispanic Whites by Age 25 to 29 Years for Those Entering College 1992 to 2000



Source: Census Bureau

Undergraduate Degree Completion for Blacks by Age 25 to 29 Years for Those Entering College 1992 to 2000



Source: Census Bureau

Out of 5,735,000 females that had started college, 3,743,000 had an associate degree or more, or 65.3 percent. A subset of these, 2,811,000, had a bachelor's degree or more from college. This was 49.0 percent. Another 1,992,000 women had started college but had not yet earned an undergraduate degree.

Non-Hispanic whites. In March of 2000, 7,622,000 non-Hispanic whites age 25 to 29 years had started college. Of these 4,047,000 had a bachelor's degree (or more), and another 1,144,000 had associate degrees. Of those with any college, 53.1 percent had bachelor's degrees, and 15.0 percent had associate degrees. 3,575,000 had some college but no degree. Between 1992 and 2000, the number of whites age 25 to 29 with any college declined from 7,781,000 7,622,000.

Non-Hispanic Blacks. In this analysis data from 1992 through 1998 are for all blacks. Data for 1999 and 2000 are for non-Hispanic blacks. In 2000 there were 1,267,000 blacks age 25 to 29 with at least some college. Of these 429,000 or 33.9 percent had at least a bachelor's degree. Another 196,000 had associate degrees, or 15.4 percent of the total. 642,000 had some college but no degree. Between 1992 and 2000 the number of blacks age 25 to 29 with any college increased from 964,000 to 1,267,000.

Non-Hispanic Asian/Pacific Islander. This racial group stands out from other racial/ethnic groups by their relatively high bachelor's degree and low associate degree completion rates. In March of 2000, out of 771,000 25 to 29 year olds with any college, 533,000 or 69.1 percent had completed a bachelor's degree or more, and another 64,000 or 8.3 percent had completed associate degrees. The total degree completion rate was 77.4 percent. The remaining 174,000 had some college but no college degree.

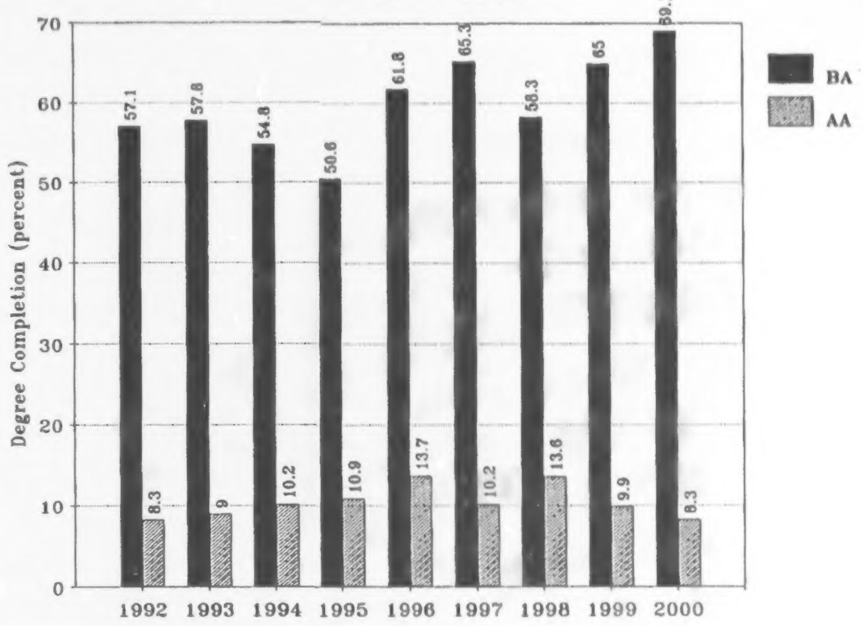
Hispanics. Hispanics may be of any race, although this group is about 95 percent white. They are the only ethnic group separately identified in reports produced annually from the Current Population Survey. Between 1992 and 2000 the number of Hispanics between the ages of 25 and 29 years with at least some college increased from 608,000 to 928,000.

In March of 2000 273,000 Hispanics in this age range had at least a bachelor's degree from college, for a college completion rate of 29.4 percent. An additional 161,000 had an associate's degree, or 17.3 percent completion rate. Thus 46.8 percent had an undergraduate degree. An additional 494,000 had some college but no degree. Hispanics had the smallest share of 25 to 29 year olds with any college who had completed any undergraduate degree.

American Indians. We have derived some questionable data from the published CPS data that probably mainly describes American Indians. Out of about 85,000 25 to 29 year olds with at least some college in 2000, 29,000 had a bachelor's degree (or more). This is 34.1 percent of the total. Another 23,000 had associate degrees, or 27.1 percent of those with some college. This is far larger than for any other group.

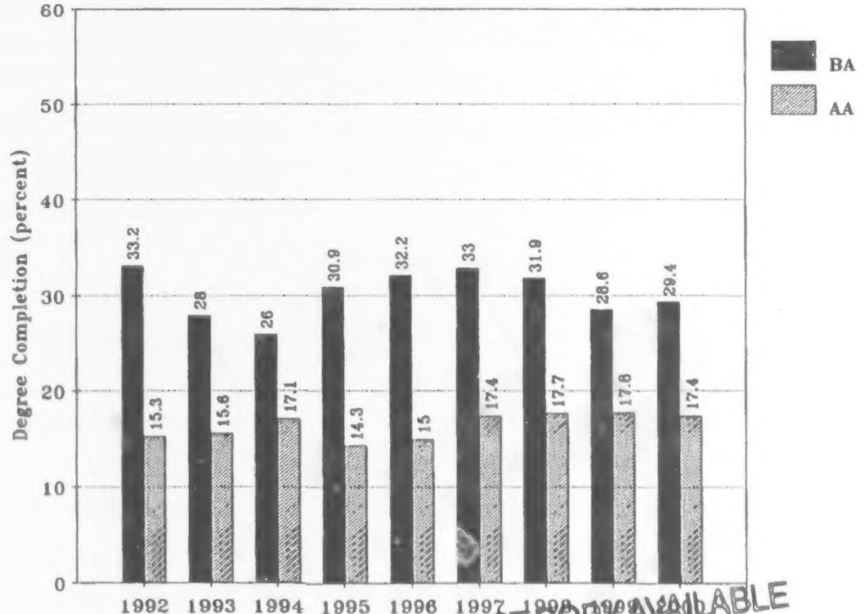
Our analysis of data recently released by the Census Bureau shows that among 25 to 29 year olds who had enrolled in college, 49.8 percent had completed a bachelor's degree, an additional 14.9 percent had completed an associate degree, and 35.3 percent had not yet completed a degree. While degree completion rates were quite similar between men and women, they varied widely across racial ethnic groups. They were highest for Asians (77.4 percent) and lowest for Hispanics (46.8 percent).

Undergraduate Degree Completion for Asian/Pacific Islanders
by Age 25 to 29 Years for Those Entering College
1992 to 2000



Source: Census Bureau

Undergraduate Degree Completion for Hispanics
by Age 25 to 29 Years for Those Entering College
1992 to 2000



Source: Census Bureau

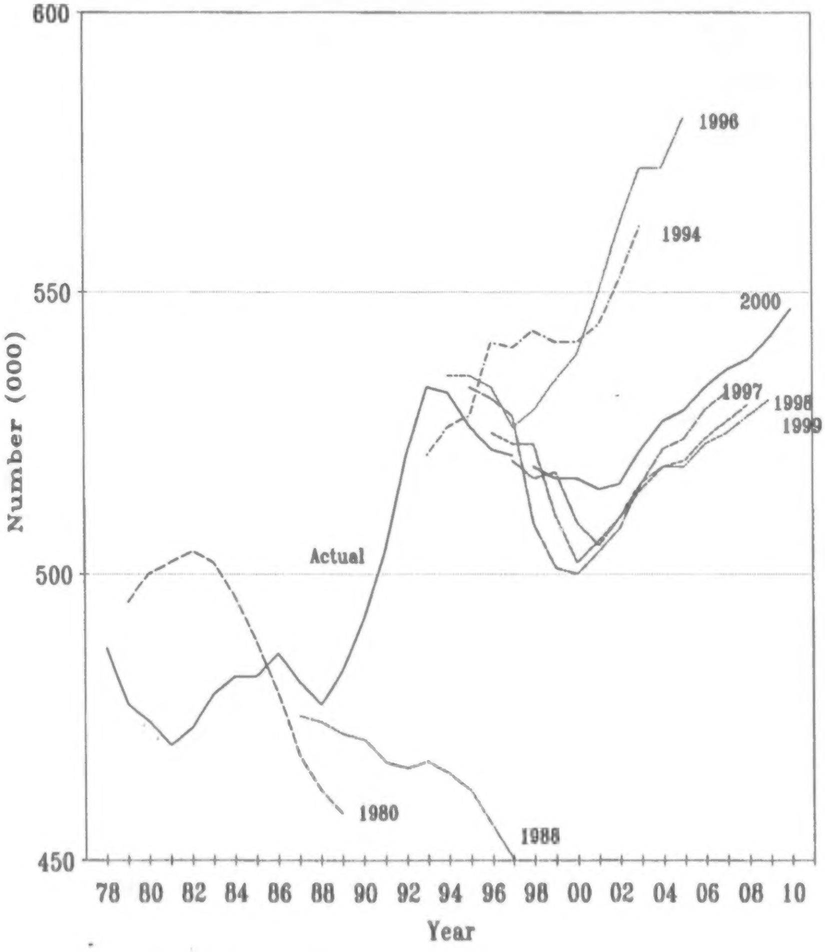
Projecting Bachelor Degree Recipients by Gender 1980 to 2000

Historical data since 1870 have shown a steady growth in the proportion of bachelor's degrees awarded to women. In 1870 14.7 percent of all bachelor's degrees were awarded to women. By 1997 this had grown to 55.6 percent. On October 1, 2000, females were 49.0 percent of the population between the ages of 20 and 24 years according to the Census Bureau.

Since 1964 the National Center for Education Statistics has published projections of bachelor degree production by U.S. colleges and universities. These projections are prepared for women and men separately. They are published each year in the annual NCES report *Projection of Education Statistics* along with other education projections.

Recently we reviewed these projections to see how well they captured the dramatic growth in the numbers of bachelor's degrees awarded to women over the last two decades. The growth in bachelor's degrees awarded to women, combined with the lack of comparable growth in bachelor's degrees awarded to males, has produced the gradual, persistent and significant redistribution in bachelor's degrees awarded by gender noted above.

Actual and Projected Male Bachelor Degree Recipients
1980 to 2010



Source: National Center for Education Statistics

All projections, by their very nature, turn out to be wrong. Actual numbers nearly always turn out to be higher or lower than the projections. However, projections remain useful because they indicate future conditions that are relevant to public policy makers. Some projection factors, such as the size of the population to be served, are well know decades in advance. Other factors, such as participation and completion rates, are subject to unknowable future conditions such as the stage of the business cycle.

The accuracy of the NCES projections by gender are not at issue here. Rather, we wanted to see how well these projections captured the gender shift from majority male to majority female during the last two decades.

Our review of the past projections finds that until about 1996 NCES has poorly projected bachelor's degrees by gender.

- The NCES projections produced in 1980, 1988, 1994 and 1996 missed the gender shift in bachelor degree awards completely. Not only the magnitude, but more importantly the direction of change turned out to be wrong.
- The NCES projections for 1997, 1998, 1999 and 2000 appear to have captured the gender shift, but it is too early by several years to know for sure.

What we conclude is that the projection models used by NCES did not capture the gender revolution while it was underway. In fact it had been underway for many years and it was not recognized. NCES projections produced beginning in 1997 appear to have a fuller appreciation of the gender revolution occurring in higher education enrollments and bachelor degree awards.

The Data

All of the data on bachelor's degree awards by gender used in this analysis are either collected or produced by the National Center for Education Statistics.

The historical data on bachelor's degrees by gender have been collected by NCES or its predecessors since 1870 from institutions. Currently these data are collected in the annual IPEDS survey. When they are compiled and reviewed by NCES, they are published first in ED Tabs reports, and eventually appear in summary tables in the annual *Digest of Education Statistics*.

Morgan, F. B. (November 1999.) *Degrees and Other Awards Conferred by Title IV Eligible, Degree-granting Institutions: 1996-97.* National Center for Education Statistics. NCES 2000-174. Washington, DC: U.S. Department of Education.

The projected data on bachelor's degrees by gender are also produced by NCES, albeit by different staff. These data appear in the following publication, which has recently been updated through 2010 on the internet:

Gerald, D. E., and Hussary, W. J. (July 1999.) *Projections of Education Statistics to 2009.* National Center for Education Statistics. NCES 1999-038. Washington, DC: U.S. Department of Education.

We have used reports from this projection series that were prepared in 1980, 1988, 1994, 1996, 1997, 1998, 1999 and 2000 in this study.

The projection models for male and female bachelor's degree awards are detailed in a technical appendix to the report. The regression equations and variables used, as well as the assumptions are described in the appendix. The most recent report is available from the NCES website at:

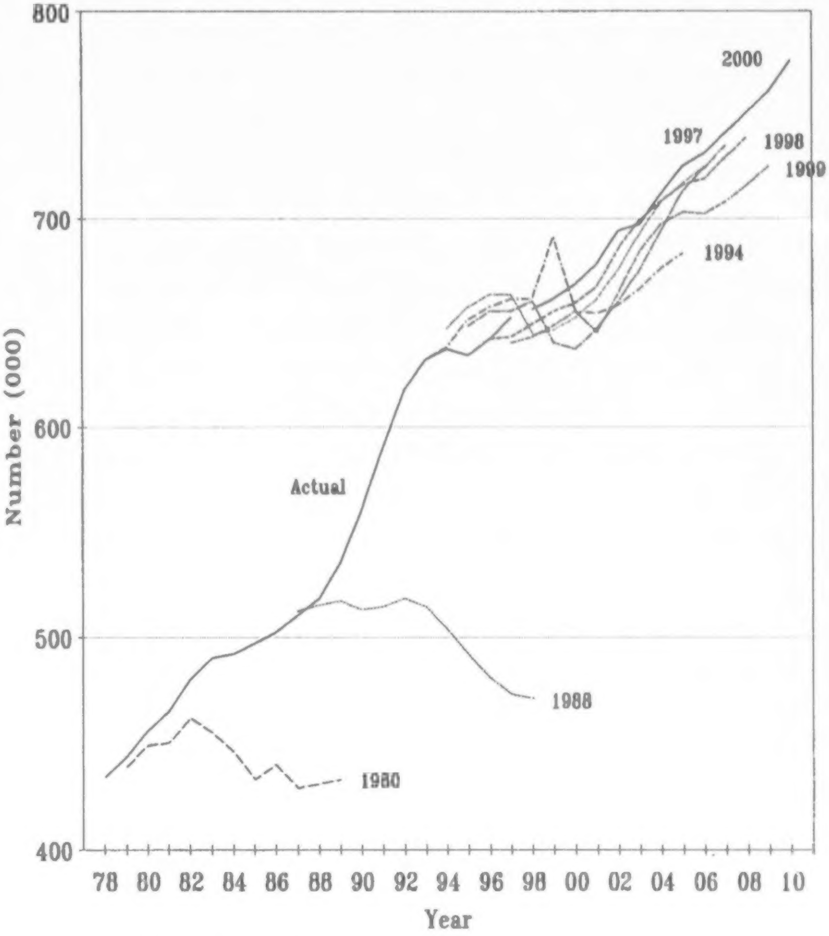
http://nces.ed.gov/pubs2000/projections

Our tabulation and analysis of the actual and projected data is available in an Excel spreadsheet on our website at:

http://www.postsecondary.org

Look under the Spreadsheets button.

Actual and Projected Female Bachelor Degree Recipients 1980 to 2010



Source: National Center for Education Statistics

Actual and Projections

Between 1978 and 1997 the number of bachelor's degrees awarded in the United States increased from 921,204 to 1,172,879, an increase of 27.3 percent. During this same period the number of bachelor's degrees awarded to females increased from 433,857 to 652,364, or by 50.4 percent. The number of bachelor's degrees awarded to males during this period increased from 487,347 to 520,515, or by 6.8 percent. During this period the proportion of bachelor's degrees awarded to men declined from 52.9 to 44.4 percent.

1980. In April of 1980, NCES made projections of bachelor degree awards by gender for 1979 through 1989. (There is a two-year delay between the completion of the academic year and reporting of degree recipient data from which the projections are made.) For males, these projections were well above actual and subsequent counts between 1979 and 1984, but thereafter fell well below actual numbers. For females, projected numbers of bachelor degree awards were consistently below subsequent actual numbers, by an increasingly wider margin in the later years of the ten-year projection.

As a result of these disparities, the 1980 projections substantially underestimated the actual gender shift in bachelor degree awards that occurred between 1979 and 1989. By 1989, 47.4 percent of the bachelor's degrees were actually being awarded to men whereas in 1980 NCES had projected 51.4 percent in 1989.

This underestimation of the gender shift was to be repeated again and again in subsequent NCES projections of bachelor degree awards by gender.

1988. In September of 1988 NCES released projections of bachelors degrees by gender for 1987 through 1998. For males, NCES projected a decline in the number of bachelor's degrees from 475,000 in 1987 to 450,000 by 1997. Actually, the number increased during this period from 480,782 to 520,515 in 1997.

The 1988 projections for females were even farther from the actual mark. The projections were that the number of bachelor's degrees awarded to women would decline from 512,000 in 1987 to 473,000 by 1997. Actually the number increased from 510,482 to 652,364 by 1997.

In these 1988 projections, NCES projected that the proportion of bachelor's degrees awarded to males would increase from 48.1 to 48.8 percent between 1987 and 1997. Actually, the male share declined from 48.5 to 44.4 percent.

1994. The December 1994 NCES projections continued the previous patterns of underestimating the progress of women, and overestimating the progress of males. For males, these projections were that the number of bachelor's degrees would increase from 521,000 in 1993 to 540,000 by 1997. Actually the number declined from 532,881 to 520,515 during this period. For females the projection was increased from 632,000 in 1993 to 661,000 by 1997. Actually, the numbers grew from 632,297 to 652,364 during this period. The projected share of bachelor's degrees awarded to males was from 45.2 to 45.0 percent during this period. Actually it declined from 45.7 to 44.4 percent between 1993 and 1997.

Recent projections. The most recent NCES projections of bachelor's degrees by gender show declines for males followed by increases through 2010.

For females the projections all show significant, continuing growth, with the just-released 2000 projections through 2010 projecting the greatest increases.

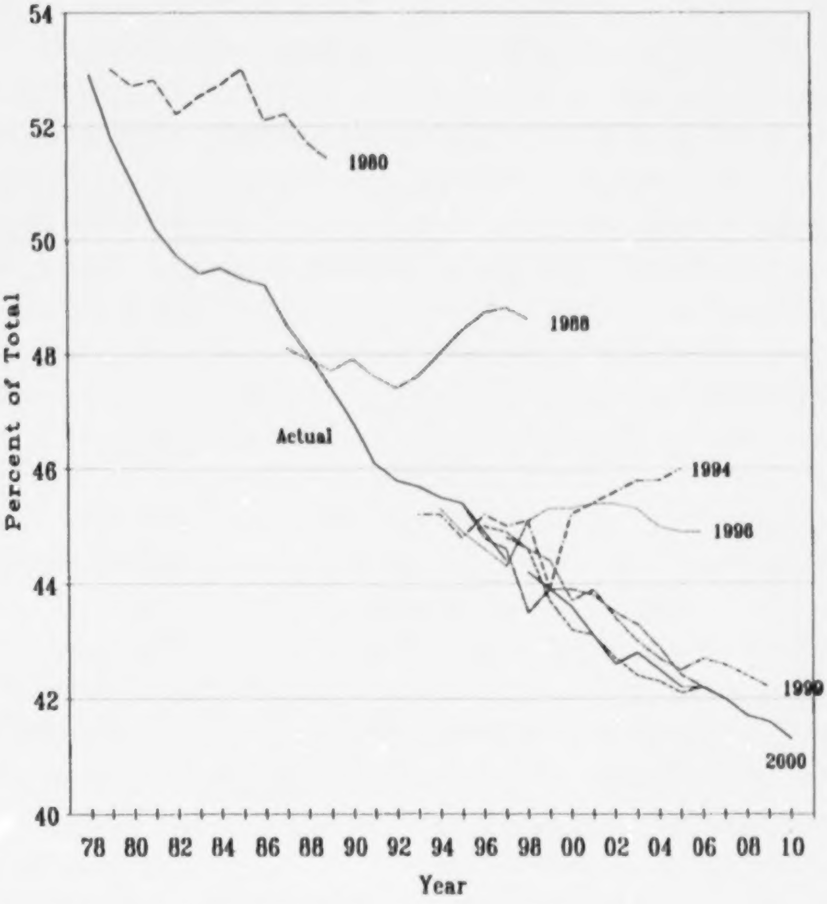
Gender Shift

The NCES projections of bachelor's degrees by gender have failed to capture and understand the enormous changes occurring in the production of bachelors degrees by American colleges and universities. As guides to the next decade, they have utterly missed the mark. Like all of us, the projection models--built by humans--did not see what was happening in the educational system that has produced such starkly different results in bachelor degree awards to men and women.

These measures of the attainment of the genders through the bachelor's degree are like the canary in the coal mine. Many small changes affecting the educational experiences of boys and girls, and of men and women, in the educational system become most apparent at college graduation, at the end of the education pipeline. The shifting gender balance in the awarding of bachelor's degrees is a reflection of differences in the educational and other experiences of boys and girls growing up. This reflection strongly suggests the success of these experiences in preparing girls and young women for the adult worlds of work, family and civic life. It also strongly reflects our failure to improve the educational experience for boys and young men--to make it interesting, attractive and engaging.

The most recent NCES projections just released show a more pronounced gender shift in the award of bachelor's degrees than any produced to date. By 2010 just 41.3 percent of the bachelor's degrees will be awarded to men, although men represent 51 percent of the population between the ages of 20 and 24 years. To judge by

Actual and Projected Shares of Bachelor's Degrees
Awarded to Males
1980 to 2010



Source: National Center for Education Statistics

NCES's past record of substantially underestimating the gender shift, even these new estimates may understate what will happen a decade from now. We could just wait and see what happens, or we could try to do something to stop the gender imbalance from worsening from its currently unbalanced state. That would, of course, require an effort that thus far no one is undertaking.

Context

The first article in this issue of OPPORTUNITY finds that males who start college are now somewhat more likely than females to complete a bachelor's degree by age 25 to 29 years. Thus, the gender shift in bachelor degrees awarded does not appear to be the result of different rates of success *for those who make it to higher education.*

Rather, the problems for males appear to begin earlier in the educational system. Remember that for every 100 girls born in the U.S., 105 male babies are born. This has been constant over at least the last two decades. About 51 percent of the babies born each year are boys.

Males maintain this population advantage through age 24, then have about equal numbers with women through 29. By age 30 women barely outnumber men, and thereafter the gender gap in the population grows steadily ever wider as men die earlier in their lives than do women.

Men received just 44.4 percent of the bachelor's degrees awarded in the U.S. in 1997. The source of the gender gap does not appear to be in college completion for those who make it to college. Thus, the source of the gender disparity must predate higher education enrollment.

Something is occurring differently in the lives of boys and girls while growing up. And whatever this differential influence is, it has developed over the last twenty five years.

We have speculated on its causes--urbanization and labor market changes, that favor women and no longer favor men--mostly to get an intelligent national discussion started on the future of the male gender. We do not consider affirmative action for males in college admission to qualify as an intelligent response to the growing gender imbalance in college enrollments. Nor do we think colleges that beef up their sports programs to attract males to qualify as an intelligent response.

Rather we should be asking why adult males are disengaging from their traditional labor market, family and civic roles. We should be asking if the problems of adult men are adversely affecting their own sons.

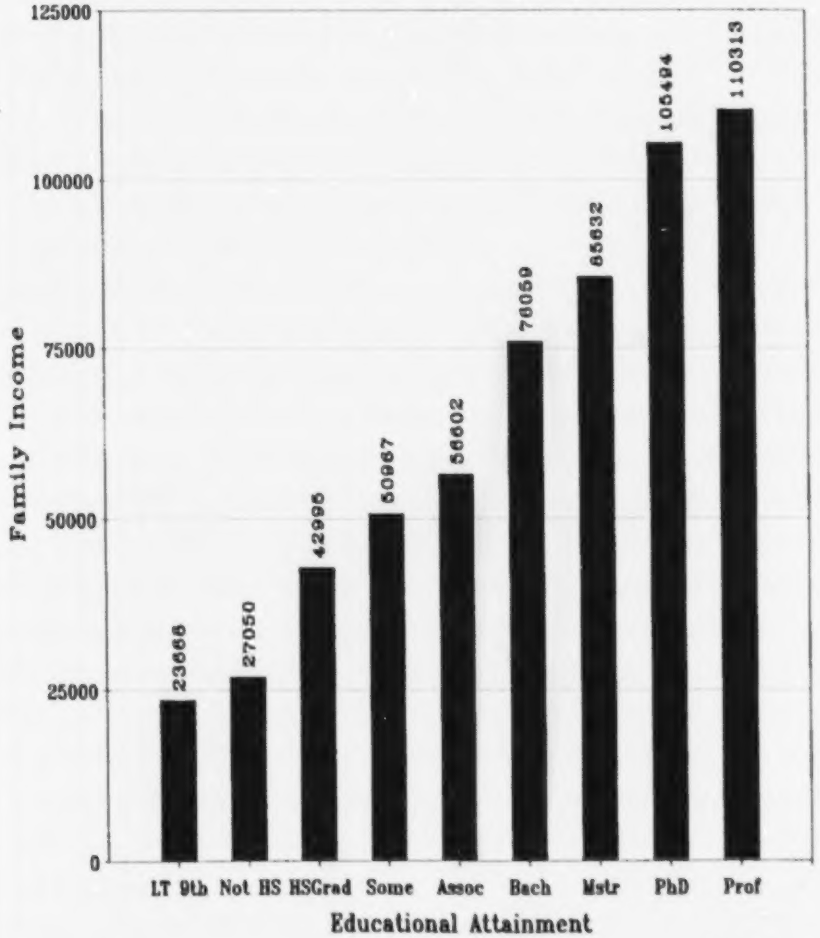
Maybe if we were farther along on this discussion, our projections of bachelor's degrees by gender would be more accurate than they have been in the past.

Family Income by Educational Attainment of Householder 1956 to 1999

Most Americans live most of their lives in family units. In 1999 about 82 percent of all Americans were living in families. In 1999 average family size was 3.2 members, but varied by race and ethnicity. Hispanic families average 3.9 members, compared to 3.4 for blacks and 3.0 for non-Hispanic whites.

Families are where we raise our children, but families include other arrangements too. The Census Bureau defines a family to be two or more people related by birth, marriage or adoption living in the same housing unit. In 1999 fewer than half (49 percent) of all family households had own children under 18 living at home. 14.4 percent of the family households had own children age 18 and over living at home.

Median Family Income
by Educational Attainment of Householder
1999



The welfare of families is substantially determined by the amount of money available to live on. Less money yields lower living standards. More money yields higher living standards. Thus, family income is a useful measure of family welfare.

And increasingly, family income (and welfare) is determined by the educational attainment of the breadwinners in the family. More education leads to more income which in turn produces higher family living standards. (Yes, it is just that simple.)

Not only has this relationship persisted over time, since the early 1970s the relationship has strengthened. Families headed by persons with the most formal education have seen real gains in their incomes and living standards. Families headed by persons with the least formal education have seen real declines in their incomes and living standards.

Here we update and extend our many previous analyses of the relationship between educational attainment and family income. Recent release of 1999 family income data by the Census Bureau enable this update. Additional unpublished Census Data extend the analyses.

In so many respects it is this simple, straightforward relationship that underpins public policy designed to foster opportunity for postsecondary education and training. More is better, especially in this materialistic society. And especially since 1973. Indeed, our futures depend on it.

The Data

Data on 1999 family income became

available when in September the Census Bureau released results from the March 2000 Current Population Survey. This report is available on the Census Bureau's website at:

http://www.census.gov/hhes/www/income.html

These data were collected in the March supplement to the monthly Current Population Survey (CPS). This is a monthly survey of about 50,000 American households designed to collect data on employment and unemployment. The March supplement includes a major demographic component that asks additional questions on income and educational attainment.

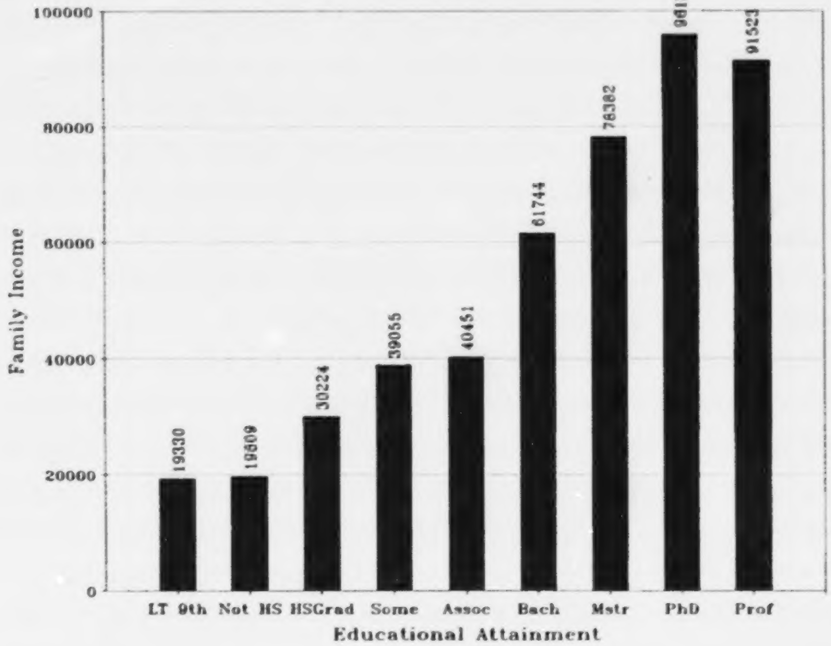
The official definition of money income includes for each person in the CPS sample 15 years and over the amount of money income received in the previous calendar year from each of the following sources:

1. Earnings.
2. Unemployment compensation.
3. Worker's compensation.
4. Social security.
5. Supplemental security income.
6. Public assistance.
7. Veterans' payments.
8. Survivor benefits.
9. Disability benefits.
10. Pension and retirement income.
11. Interest.
12. Dividends.
13. Rents, royalties, and estates and trusts.
14. Educational assistance.
15. Alimony.
16. Child support.
17. Financial assistance from outside of the household.
18. Other income.

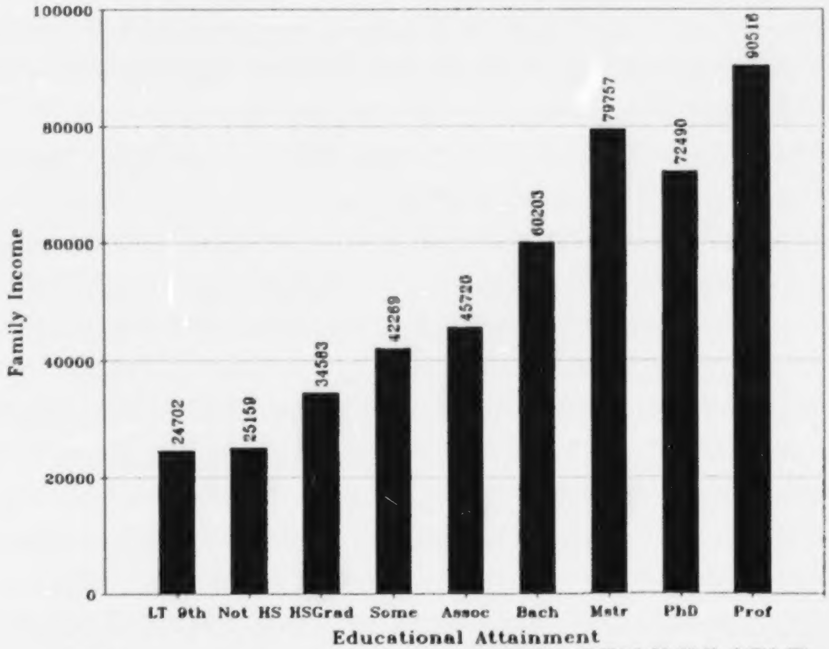
Educational Attainment

The chart on the previous page shows median family income by educational attainment of the householder for 1999. (Census reported median family income for householders with

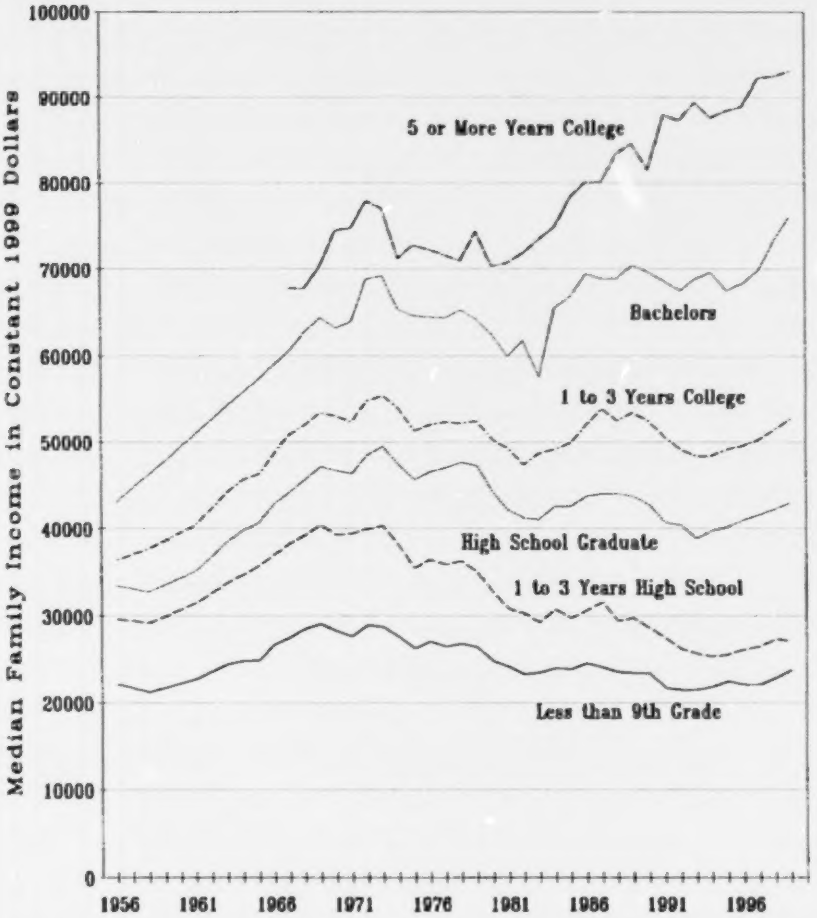
Median Family Income for Black Families
by Educational Attainment of Householder
1999



Median Family Income for Hispanic Families
by Educational Attainment of Householder
1999



Median Family Income by Educational Attainment of Householder 1956 to 1999



doctorates and professional degrees at exactly $100,000. So we have substituted our own estimates by extrapolation.)

Across levels of educational attainment, median family income rises:

- For families headed by persons with some high school but less than a high school diploma, median family income in 1999 was just over $27,000.
- For high school graduate-headed families, median family income rises to nearly $43,000.
- In families headed by a persons with an associate degree, median family income is closer to $57,000.
- For families headed by a person with a bachelor's degree, the median is over $76,000.
- In families headed by persons with doctorate or professional degrees, the median family income is over $100,000.

Race/ethnicity. Beginning with 1998 the Census Bureau began reporting family income by race/ethnicity. The 1999 family income data are reported for white, black, Hispanic and non-Hispanic white at:

http://ferret.bls.census.gov/macro/032000/faminc/new01_000.htm

As shown in the charts for black and Hispanic families on page 13, the basic pattern for all families on page 13 holds here too. Median family income increases with educational attainment in all racial/ethnic groups.

Income per Family Member

Another way of examining the importance of educational attainment is to look at income per family member. Obviously income at a given level would be more important to larger families than it would to smaller families. Fortunately, the Census Bureau has controlled for family size and calculated family income per family member.

The chart on the following page shows this relationship. Family income per member ranges from $8,873 in families where the householder has less than a 9th grade education, to $48,391 in families where the householder has a professional degree.

By way of reference, 1999 weighted average poverty thresholds by family size were as follows:

One person (under 65)	$8,667
Two people (under 65)	$11,214
Three people	$13,290
Four people	$17,029
Five people	$20,217
Six people	$22,727
Seven people	$25,912
Eight people	$28,967
Nine people or more	$34,417

While our chart on the following page shows this relationship for all families, the Census Bureau has calculated and reported these data for each racial/ethnic group: white, black, Hispanic and non-Hispanic white. These data are available at the above Census Bureau website.

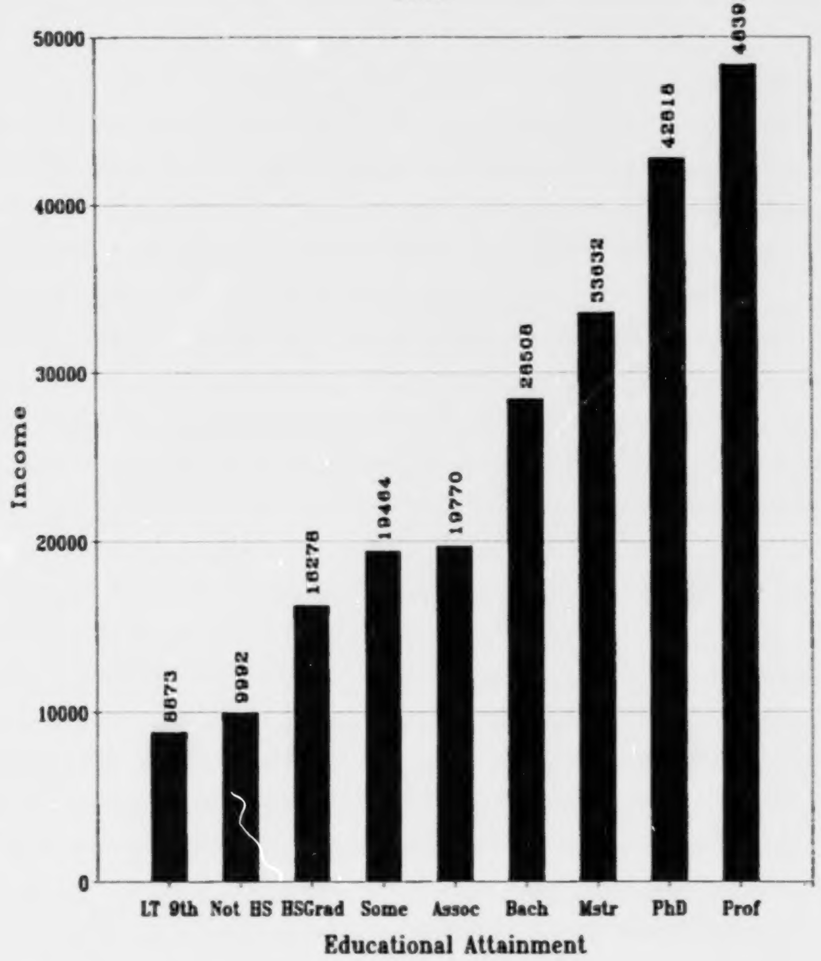
Trends

The chart on page 14 shows trends in two distinct periods: pre- and post-1973.

During the first period, median family income in constant dollars increased at all levels of educational attainment. This period spanned at least the period from 1956--when Census began reporting these data--through about 1973. This was the era when the rising tide lifted all boats, and it ended nearly three decades ago.

The second period spans the years from 1973 through the present. During this period, median family income for all families remained about flat. But during this period, family income was significantly redistributed away from families headed by persons with lower levels of educational attainment toward those families headed by persons with the most formal education. This is the human capital era when real family income gains go only to those with college educations.

Income per Family Member
by Educational Attainment of Householder
1999



How families at different levels of educational attainment have fared since 1956 may be shown with a few examples. Dollars are constant 1999 dollars.

- Families headed by persons with some high school but no diploma saw their median family income increase from $29,600 in 1956 to a peak of $40,300 in 1973. Since then they have declined to $27,100 by 1999.
- Families headed by persons with a high school diploma only have seen their median family incomes increase from $33,400 in 1956 to a peak of $49,500 in 1973, then fall back to $43,000 by 1999.
- Families headed by persons with 1 to 3 years of college have seen their real median family incomes increase from $36,400 in 1956 to a peak of $55,400 in 1973. After 1973 the median has fluctuated between $48,300 (1993) and $53,900 (1987), and in 1999 stood at $52,700.
- Families headed by persons with a bachelor's degree have seen their real median incomes increase from $43,000 in 1956, to $69,200 in 1973, to a record $76,100 in 1999.
- The families with the greatest real income gains are those with five or more years of college. Real median incomes have increased from $67,800 in 1967 to $77,000 by 1973 and further to a record high of $93,000 in 1999.

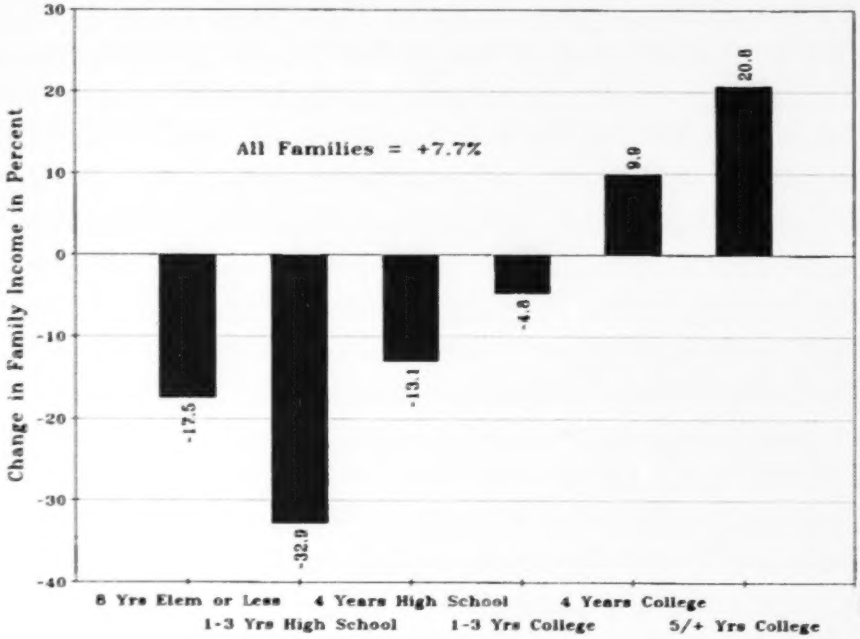
Interpretation

Clearly, those families headed by persons with a bachelor's degree or more from college have seen substantial real gains in their median incomes since 1956. Those with a high school education prospered between 1956 and 1973, but have since experienced substantial erosion in their real incomes and living standards.

There is another way to interpret this redistribution of family income since 1973--through a demand/supply model. The labor market's need for college educated workers has grown faster than the supply since 1973. Thus, the market value of workers with the highest levels of education and training has increased since 1956. Also, there are more workers than jobs that require a high school education or less. Thus the market value of these workers has declined.

Our interpretation of these data is that the need for higher educated workers of the American economy has increased faster than the supply of such workers since 1973. While the federal government has been expanding its investment in higher education, states have been curtailing their investments, particularly since 1980. States have grown more short-sighted in refocusing state resources away from long term human capital growth into meeting shorter term needs for prisons and Medicaid.

Change in Median Family Income by Educational Attainment of Householder Between 1973 and 1999



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